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AMERICAN VETERINARY REVIEW,

EDITED BY

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Honorary Fellow of the Royal College of Veterinary Surgeons (England),

AND

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AMERICAN VETERINARY REVIEW.

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All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

THE OPENING OF VOLUME XXIII.

The REVIEW believes that the pledges made its readers at the inauguration of Volume XXII have been substantially fulfilled. In the twelve monthly numbers constituting that volume there were published 64 editorial articles, 25 of which were from the pen of Dr. Liautard upon scientific subjects gathered through his specially favored opportunities while sojourning in the French capital. Practitioners from almost every State in the Union have contributed to make the department of "Reports of Cases" the greatest forum for the discussion of practical subjects that has ever been conducted by any veterinary magazine, for during the year there appeared no less than 59 distinct cases reported. "Original Articles" have been of exceptional value and interest, being contributed to the number of 51, and many by the most brilliant writers of veterinary literature upon subjects of original research and representing every phase of the science. The professional periodicals of Europe were faithfully followed, and when any item was thought to be of value and interest to our readers it was reduced to the briefest space consistent with its proper recital and transmitted to our pages—whether in the English, German, French, Belgian, Italian, or Spanish tongues. While the volume of such translations may not appear so stupendous the amount of labor involved was very great, for which our readers are indebted largely to the untiring energy of Prof. Liautard. The whole number of items

appearing under this classification was 117. The department devoted to the proceedings of veterinary medical associations probably made the most notable advancement—not so much in the number of meetings reported, but in the character of the work of the Secretaries. We have urged them continually to devote more space to the scientific aspect of the proceedings, and less to the detailing of the condition of the treasury, the character of the luncheon, and the motion to adjourn; which has been responded to in most instances by a *verbatim* copy of the papers and intelligent excerpts of the discussions. The volume contained the reports of 70 meetings, many of which were very full and valuable. There were 14 new publications reviewed, and 23 letters from correspondents published. Besides this, there were a great number of special and miscellaneous articles—making in all 892 pages of material devoted exclusively to the interests of the American veterinarian.

In return, the REVIEW has extended its popularity and usefulness considerably, as evidenced by the addition of about 200 new subscribers, and an amount of earnest moral support that would more than recompense for all the time, labor and worry necessary for its conduct—if there were no bills to pay. There would be plenty of money for all such purposes, and plenty to spare to improve and illustrate the journal if all of our long list of subscribers would promptly pay the small yearly fee. But they don't! strange as it may seem. A new era of business methods upon the publishers' part, we fear, will be the only means of ridding our lists of those who seem willing to benefit by the labor of others without fulfilling their own business or moral obligations.

VETERINARY LEGISLATION.

In the March REVIEW we detailed the progress being made by certain bills affecting veterinary medicine in the New York legislature. The members of the profession in the State took vigorous action with reference to those seeking to reopen the registration books to the quacks, and the amendments are

peacefully sleeping in the committees to which they were assigned, with every prospect that they will never revive. In the metropolitan district the Legislative Committee of the New York County Veterinary Medical Association took up the matter, and Chairman O'Shea sent forth the following letter to all veterinarians in the district:

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY,
COMMITTEE ON LEGISLATION.

ARTHUR O'SHEA, CHAIRMAN, 117 WEST 46TH STREET,
NEW YORK CITY (Borough of Manhattan), March 10, 1899.

DEAR DOCTOR:—As chairman of the Judiciary Committee of the Veterinary Medical Association of New York County, I address you this letter upon a subject of the most vital importance to your own welfare and the stability, honor and advancement of the profession of which you are a member. With exact regularity the hard earned protective laws of New York State are yearly attacked by quacks and incompetents, who hope to secure by political chicanery what they can never accomplish by fair means and upon their merits—that is, to throw the profession ten years backward by reopening the books which were closed in 1886 against every quack who disgraced the Commonwealth.

Surely, Doctor, it is a travesty upon civilization and advancement to slap in the face every self-sacrificing member of the profession who has labored to secure the high standard which we have achieved, by, at this late date, admitting to practice any man who does not possess a diploma from a reputable veterinary college. The colleges of the State have bankrupted themselves by their heroic self-imposed decision that the professional standard shall be the highest in America. Will you stand silently by and see political trickery exerted to defeat this great cause? I know you will not, and, therefore, I ask in all earnestness that you will, at once, write to the various chairmen, as indicated, a letter couched in as vigorous English as you may have at your command, protesting against the favorable reporting of such infamous measures as contained in the bills below detailed. Also write to any Senator or Assemblyman you know, asking them to use their good offices with the chairmen of committees having these bills to kill them.

Assembly Bill 197, introduced by Mr. Beede, and referred to the Committee on General Laws.—*Assemblyman Fish, Chairman.*

This bill opens the books and admits quacks. Kill it!

Assembly Bill 243, introduced by Mr. Greenwood, has passed the Assembly and sent to the Senate and referred to the Judiciary Committee.—*Senator Brackett, Chairman*

This bill opens the books to admit quacks. Write at once, and kill it. Delay may be dangerous.

Assembly Bill 329, 755, introduced by Mr. Coughtry, has passed the Assembly and sent to Senate, where it was referred to Committee on Public Health.—*Senator Johnson, Chairman.*

Opens the registration books of 1886 and permits quacks to register. Kill it quick. It is infamous, though without vigorous protest might become a law. To be forewarned is to be forearmed.

Now, doctor, I sincerely trust that you will permit no duty to supersede that of entering your protest against this threatening calamity, as I am sure none can avail you more good personally nor professionally.

Yours fraternally,

ARTHUR O'SHEA.

*Chairman Com. Legislation, Veterinary Medical Association of N. Y. County.
Member Com. Legislation, N. Y. State Veterinary Med. Society.*

At the last meeting of the New York County Society Bill No. 650 (referred to in our last issue), to establish a State live stock commission, was endorsed, providing an amendment to include the principles of civil service was incorporated, which is in line with the views expressed by us last month.

Dr. Kelly, of the Legislative Committee of the State Society, has forwarded us a copy of another iniquitous bill—Assembly Bill 838, introduced by Mr. Delaney and referred to the Committee on Public Health. It embodies this paragraph: "Qualification for practice.—No person shall practice veterinary medicine after July 1st, eighteen hundred and ninety [five] *nine*, unless previously registered. * * * Any graduate of a veterinary school who received his degree prior to July first, eighteen hundred and ninety [five] *nine*, and has practiced veterinary medicine in some county in New York State, but who failed to register in the county in which he so practiced, may, on unanimous recommendation of the State Board of Veterinary Medical Examiners, receive from the Regents a certificate which shall entitle him to register * * *

"We have no idea that this bill will get beyond the Senate Committee, but if it should become a law, we judge that the applicant would experience some difficulty in securing the "unanimous recommendation of the State Board of Veterinary Medical Examiners."

Wisconsin veterinarians are seeking to secure an amendment to their law—Section 1492 F of the laws of 1898—which reads as follows: "Any person who shall violate the provisions of this section shall be punished by a fine of not less than \$25 nor more than \$100, or by imprisonment in the county jail not less than thirty nor more than ninety days or both." Secretary Clark, of the Society of Graduates, has sent forth a circular let-

ter asking veterinarians to urge its passage upon Senators and Members of Assembly.

But the full extent of consummate quackery is never reached until we hear from Illinois. She usually outstrips all competitors in the race of retrogression. A State which could only have a choice between a Tanner and an Altgeld, and which could subsequently remove a true scientific and conscientious State veterinarian to make room for a political creature without the qualifications of a rudimentary professional education, can be relied upon to occasionally give us something sensational in the line of veterinary legislation. In a seven-page bill (301) introduced in the Senate on February 23 by Mr. May, there is created a veterinary examining board under control of the live stock commissioners who are given power to examine and license everybody who has the price of their fees. Section 4 contains this sentence: “* * * The State Board of Veterinary Examiners shall examine all applicants not entitled to practice by reason of being in possession of a diploma, or of having practiced three years, presenting themselves for that purpose. * * * All applicants for examinations before the Board of Veterinary Examiners who shall not possess a diploma as aforesaid, or who shall not have practiced three years or more, shall accompany said application by an examination fee of twenty dollars.” It makes no difference what the other provisions of the long bill are, it is the most audacious that has been attempted in any State in recent years. By the time this issue of the REVIEW reaches its large number of readers in that State, we presume every legitimate practitioner in Illinois will have sat upon it very hard.

THE ARMY BEEF INQUIRY.

Although at this writing the investigations of the Army Board, appointed to examine into the meat supply during the war, is not finished, sufficient testimony has been produced to make this inquiry one of more than passing interest to the veterinarians of the country. The accusations of General Miles,

commanding the army, had been that large consignments of contracted fresh beef and canned roast beef had been rendered unwholesome by chemical preservatives or from use of diseased meat, and that much of the prevailing sickness of soldiers in the southern camps and particularly in Cuba and Porto Rico, was its direct result.

Although we believe that the War Department has had the best intentions and has earnestly striven to secure and furnish the best available meat to the troops, the evidence so far elicited goes far toward showing that the Subsistence Department has been acting without the guidance of expert counsel which alone could furnish that scientific knowledge and practical judgment of the quality and wholesomeness of meat which is so essential for providing an army in the field. This fact becomes particularly plain when we read the testimony given by army surgeons, who seem to be regarded by the War Department as experts in this branch of veterinary science. The famous phrase "embalmed beef," credited to Dr. Daly, a volunteer surgeon, proves in itself that these doctors are more familiar with the undertakers' establishments than with the slaughter-house and canning-establishments. The testimony of other surgeons, too, moves within vague generalities; they describe the meat as "chemically prepared, as decomposed, as fermented and containing ptomaines," while one sergeant signified it as unfit for dogs. But no scientific proof of these assertions has been brought forward by bacteriological or chemical examination executed on the spot. However, there seems to be no doubt that the refrigerated beef was at times spoiled by climatic influences, and that the canned roast beef was an unpalatable and innutritious meat diet. In this connection we recall the report of a German veterinary journal of a year or two ago, that a Board of Subsistence officials and army veterinarians had refused this canned roast beef as an army diet, while they accepted the canned corned beef and smoked beef. The latter, nutritious and spicy, would have been an ideal meat diet for a semi-tropical climate.

It is to be deplored that the Bureau of Animal Industry has

been dragged into the affair. There seems to be a wide popular error in regard to the extent of the U. S. meat inspection service. The public appears to suppose that our inspectors have access to every rent and corner of the slaughter-house, and that every can turned out by the big factories at Chicago has been individually inspected. Surely this ought to be, but the law should be so amended as to provide for it, and not our faithful inspectors accused of shortcomings, which to rectify are out of their reach and authority. That tricks in meat adulteration are resorted to by our butchers, whether millionaires or poor, we all know. If the secrets of the butcher's trade could be laid bare by further investigation by this Army Board, they would have at least one good effect—they would open the eyes of the American people as to the necessity for a further extension of the meat inspection, a course which has been already well agitated by our profession the country over. O. S.

ARMY LEGISLATION.

Against our hope, the Hull Army Reorganization Bill giving to veterinarians the rank, pay and allowances of a second lieutenant of cavalry, after having passed the House, has been defeated in the Senate. A substitute Army Bill, which was hurriedly drafted and passed instead during the last days of Congress, contains a veterinary amendment which reads as follows :

Of the veterinarians provided for in this act, 1 shall have the pay and allowances of a 2d lieutenant of cavalry and 1 shall have the pay of \$75 per month and the allowances of a sergeant major : Provided, That the veterinarian appointed to the first grade shall not be so appointed until he shall have passed an examination to be prescribed by the Secretary of War, as to his physical, moral, and professional qualifications : Provided further, That the veterinarians now in the service who do not pass such competitive examination shall be eligible to the positions of the second class under such rules as are now prescribed by the regulations.

It will be seen from the above provisions that opposing influences have been at work reducing the once satisfactory amendment to a rather farcical measure, and perpetuating cer-

tain evils against which we have been fighting so persistently for many years. We are informed that the whole power of a Staff-Department was thrown against our amendment and that, when it was found impossible to kill it entire, at least the successful attempt was made to have stricken out the *one* word, "rank," leaving to the veterinarian only the "pay and allowances of a lieutenant of cavalry." We also think little of the provision which allows the present army veterinarians to remain in their unchanged position if they do not pass the prescribed examination. It will kill the ambition for advancement of some, and assist others, incompetent and undesirable, to remain in the service indefinitely.

Yet, even this Bill marks a distinct step in advance. With an examination as entrance requirement, and the pay of a lieutenant provided for, we will see more competent veterinarians enter the army service. They will surely use their better knowledge and energies to modify and modernize the veterinary service and produce results similar to those so well acknowledged in other armies. Moreover, with the solid backing of the veterinarians of the whole country, and the experienced guidance of Dr. Salmon in the halls of Congress, we may hope to see planted a nucleus of an efficient army veterinary service within the next few years, and which may gradually grow into a great economic Army-Department, encouraged by the rapid development of the United States as a world-power. O. S.

WONDERS OF MODERN SCIENCE.

In these days of automobiles and other such like ilk, which, according to the fervid visions of the too confiding investors in horseless carriage stocks and bonds, will in a few years cause the horse to become as rare an animal as the American buffalo is at the present time, it may not be amiss to call attention to the fact that the gentle bovine also seems to be threatened with extinction by the onward march of scientific discoveries.

We are told that in the interior of Madagascar botanists have discovered a species of palm to which they have given the

name of the "traveller's palm," from which, when an incision has been made into the bark, there issues a thick, white sap, looking and tasting much like fresh cow's milk. This milk is said to be very nutritious, and because of its value to travellers in the tropics the French government has already caused specimens of this Madagascar tree to be planted along the highways in certain portions of the French West Indies.

The "Palo de Vaca" or cow tree of South America also yields, it is said, a milky fluid closely resembling cow's milk, both in appearance and quality; it is said to be perfectly wholesome and nourishing, possessing an agreeable taste like that of rich cream, and a pleasant balsamic odor, its only unpleasant quality being a slight amount of stickiness.

Just think how agreeable it will be when the householder of the future, in need of a supply of fresh milk for the nursery or cuisine, will have only to step out into his garden and, with his "little hatchet," draw forth from an inexhaustible milk tree his lacteal fluid, free from all the terrors of bovine tuberculosis and the myriad animalculæ of the milkman's pump! Verily, the roseate vaporings of the nineteenth century scientist knows no bounds, as he constantly pictures to himself the panorama of an animalless Eden here on earth.

"R."

NOTICE TO SUBSCRIBERS.—By a new rule of the New York Clearing House, all banks members thereof will be obliged to charge for the collection of checks payable in other cities except Boston, Providence, Albany, Troy, Jersey City, Bayonne, Hoboken, Newark, Philadelphia, and Baltimore, under a penalty for failure to do so of \$500 for each offense. We therefore request those remitting money to the REVIEW to do so by postal or express money order or registered letter, and thus save it the expense of collecting personal checks.

WE have in hand the papers, resolutions, etc., read at the late meeting of the Pennsylvania State Veterinary Medical Association, which will be published as rapidly as possible.

ORIGINAL ARTICLES.

MEDIAN NEURECTOMY.

BY C. E. CLAYTON, D. V. S., ASSISTANT SURGEON, AMERICAN VETERINARY COLLEGE, NEW YORK.

Read before the March meeting of New York County Veterinary Medical Association.

Before entering upon the operation, its results, the indications and contra-indications, let us briefly review its history. C. Pellerin in his little work on this subject, which was translated by Prof. Liautard for our benefit, states that, to the best of his knowledge, Peter, of the Berlin Veterinary School, was the first to perform it and read an article on the subject December 2, 1885, before the Society of Veterinary Practitioners of Berlin. Then followed Ries, of Ettelbruck, in an article entitled "A Veterinary Excursion in Belgium," in which he asks the following questions: Is gangrene, as an accident subsequent to neurectomy, the termination of a more or less severe laminitis, or is chronic laminitis a special complication of section of the median nerve? Again, in 1893, Kull, a German, reports good results on a horse that suffered with ringbone and a disease of the foot not named.

In 1894 Baldoni, of the Milan School, published a pamphlet upon this operation, and again in 1894 Pellerin issued an article on new cases which he had operated upon since his article of 1892.

So much for the history, which is quite brief, but sufficient for our purpose and for which we are greatly indebted to C. Pellerin, and Prof. Liautard for the translation. Let us now take a brief review of the surgical anatomy of the parts upon which the operation is performed, which includes the skin of the axilla, lower part of sterno-aponeuroticus and its aponeurosis, antibrachial fascia, superior extremity of radius, internal flexor of metacarpus, artery, vein and nerve, the last three being the most important.

The nerve, as you all know, has its origin from eighth cervi-

cal and first and second dorsal pairs and leaves the posterior part of the brachial plexus and passes under the axillary artery to gain the front of the humeral artery, which it follows to its termination, which is from before backward and from above downward; it then accompanies the posterior radial to the humero-radial articulation and then crosses over outwardly the latter artery to become posterior to it, in which position it continues down the leg, but not so deeply situated as the artery. At its arrival at the above articulation it gives branches to the internal flexor of the metacarpus and to the two flexors of the phalanges.

The artery has been sufficiently described when describing the nerve and it will also do for the vein, which is formed from the metacarpal veins and always accompanies the artery and nerve; these relations you will find to be the most constant. The instruments required are two scalpels or bistouries, curved scissors, blunt retractors, plain dissecting forceps, director, aneurism hook, syringe and cocaine.

The animal is cast upon the side upon which the operation is performed, any hobbles will do that allow of removing one of the legs, upon which the side bar is placed, the other end to the coronet or shin of one of the legs, which are still fast in the hobbles. I should here state that before casting I inject cocaine at the seat of operation, and by the time you are ready to operate anæsthesia of the skin and subjacent tissue is complete; now clip hair as close as possible and sterilize the skin, the instruments having been previously sterilized.

Let us now proceed to the operation, and I wish to state that the neatness and rapidity of performing the operation depends wholly on where the incision is made. This remark will probably bring to our mind, where are we to make the incision and by what landmarks, so to speak, are we enabled to decide upon the exact location. Without reference to others, I will try to make plain how to select the place. Place the finger at a point between the postero-internal border of the radius (which can be plainly felt) and chestnut, which is on the inside of the forearm

and behind the radius, pass the finger upward in a vertical direction, which you will see does not run parallel to either the front or back of forearm. When arrived at the axillary space, where the skin is very much wrinkled, you will feel the finger pass over a ridge, which will be the inferior border of the sterno-aponeuroticus, and commencing at about one inch above this inferior border of the muscle make an incision of about $1\frac{1}{2}$ inches in a downward direction and on this imaginary line which you have traced; this incision will be sufficiently large if made according to these directions. This will expose the muscle already named, which is divided in the direction of its fibres, which are downward. This reveals the loose cellular tissue which is here abundant; this is torn loose by forceps or the handle of the scalpel, but preferably cut, as there is less thickening left when wound is healed than when done by the tearing process, and I believe in any operation, where it is possible to cut, to do so in preference to tearing, as they heal so much more quickly and with less cicatrix. We now have exposed the antibrachial fascia which is attached to the posterior border of radius; make a slight puncture in this about $\frac{1}{4}$ inch behind the radius, pass the director in this opening and with scalpel or blunt-pointed bistoury enlarge opening the same size as one in skin. Let me caution you to follow this mode of opening the aponeurosis and thereby avoid a rather annoying complication which I once experienced, which was a violent struggle on the part of the animal, and the scalpel went in too deep and punctured the vein, and the flow of blood very much interfered with the operation by obscuring the field; with your blunt retractors draw back the edges of the wound, together with the internal portion of the internal flexor metacarpi, with plain dissecting forceps, and by no means use rat-toothed or bull-dog forceps, as they are called, as you might puncture the vein, which is annoying, as before stated. Isolate the nerve, but first find it, and know it when you see it. This ought to be easy if it was always where the books say it is; my experience has led me to believe that if there is any one place in the body where relations

differ it is here. Sometimes it is on top and in plain view as soon as the lips of wound are retracted, again in front of vein, again behind it, and still again beneath it, and on one or two occasions it was beneath the artery, though this latter situation is very rare, but one thing is absolutely certain and that is, if you have made your incision as directed and you do not see the nerve at first, it is only a matter of looking deeper down in the space between the posterior face of radius and anterior face of internal flexor metacarpus, as it is always here unless some one else has removed it. Now, having isolated it, pass the aneurism hook underneath and allow the free ends of hook to rest on the skin at each side of wound. This will hold the nerve up and allow the severing of it by scissors or any of the neurotomy knives, then pick up distal end of nerve and cut off about an inch. This completes the operation for me, as I do not stitch the lips of the wound nor attempt to apply a dressing to the part.

The animal is now allowed to rise and, trotted, and if a fit subject for the operation the result is nothing less than marvelous.

Having described the operation perhaps too much in detail, although I think not, for by so doing I have tried to warn you so that you may not experience the annoying parts which I have been through, we will now consider the diseases giving rise to lameness which can be permanently or partially relieved. As the median nerve supplies the inside of forearm and leg, and as we have excised a part of it at the superior extremity of the radius, sensation must have been destroyed or greatly lessened in all that part below the section, and here we find knee, shin, fetlock, pastern, coronet, foot and tendons.

I have operated upon a number with great success where there were speedy cuts which had caused a bony growth, but where ankylosis exists of the entire carpus it will avail nothing. Splints of all sizes, situations and extent with more than gratifying results. One case in particular, where the splint extended from inside to outside, and had been fired three times and blistered as many more, and still lame if worked. This animal was operated on July 5, 1897, and on August 5, 1897, put to work go-

ing sound, won a prize in every class he was entered in at Madison Square Garden that fall, which were three, sold for \$1500, worked all last season at Newport and turned out last fall, and has not taken a lame step on the leg operated upon.

Bony growths at inside of fetlock experience positive relief unless, as in the knee, there is ankylosis, same with coronet. In cases where we have sidebones it is very difficult to determine which one is causing the lameness, as I have found that it need not of necessity be both, but only one which gives rise to the lameness. This can be detected by injecting cocaine over the inside plantar nerve and if the lameness disappears median neurectomy is of great service.

In navicular disease it is far more preferable in heavy draft horses than plantar neurectomy, as it will relieve the lameness sufficiently to enable the animal to work, and has the advantage of not removing all sensation from the foot. Of course, it would not be as effectual in driving horses, but then, perhaps, when not too bad it might be resorted to in them, and if not lasting in the relief afforded it would be only a simple matter to excise the outside plantar nerve and make digital neurectomy complete.

The first case I operated upon was on December 24, 1896, and I have yet to record any deleterious results which could be traced to the operation, so that Ries' questions which were given in the early part of this paper have been satisfactorily disposed of.

Baldoni states that he has seen cases of shoulder lameness cured by this operation, but I can only agree with C. Pellerin when he says that those cases must have been ones of mistaken diagnosis.

The value of this operation for relief of lameness which has resisted firing and blistering several times, appeals to me most strongly from my experience with it, as I am positive that many an animal has been destroyed as incurable that might have been of service for many years had median neurectomy been performed.

PRACTICABILITY OF THE SERUM THERAPY IN THE TREATMENT OF HOG CHOLERA.

BY DR. W. B. NILES, AMES, IA.

Read before the Iowa State Veterinary Medical Association.

Our Secretary has assigned me a subject which I cannot discuss as satisfactorily as I would like, for the reason that the use of serum in the treatment of hog cholera has not been tried sufficiently to determine whether *it is* practical or not. Knowing, however, the great interest veterinarians and stock owners have in this subject, I consented to freely give you the benefit of what information I could gather relative to the practicability of what is now generally called the serum treatment for cholera in swine.

As the preparation of the serum and the way in which it is supposed to produce immunity and cure disease has been thoroughly described in two papers read before this body by Dr. Peters, of Nebraska, I will not touch upon these points, but at once proceed to the practical side of the question.

Any line of treatment for disease, whether directed toward prevention or cure, to be practical, must possess two qualities, first, it must succeed; and, secondly, the treatment must be of such a nature that it can generally be put into practice.

If a given treatment will not cure a considerable per cent. of diseased animals or prevent the contraction of the disease, it is not practical, no matter how easily applied or inexpensive. On the other hand, if a given line of treatment cures every case and will render all or a large per cent. immune, it is not practical unless so inexpensive and of such a nature that it can come into general use. Measured in this way, I say that the practicability of the serum treatment for hog cholera depends, first, upon whether this line of treatment will render hogs immune against the disease and cure the sick; and, second, whether the serum can be obtained and used at a figure which swine raisers can afford to pay. Taking these questions up in order, first, will the use of serum cure the sick and render well hogs immune?

This is a hard question to answer in the present state of our knowledge, and I am no better prepared to answer it than some others.

I do not consider it necessary for the treatment to do both in order to be practical, provided it possesses the second qualification.

If it will do but one, if it will cure a large per cent. of the sick ones or prevent the disease when given to the well, either before or after exposure, it may be considered a practical line of treatment.

If it will cure the diseased, it should also produce immunity if given before exposure, but it may prevent the disease and still not cure the sick.

During the past season, serum from several sources has been used in different parts of the country. Early in the summer the energetic pharmaceutical firm of Park, Davis & Co. sent a man into this State for the purpose of trying the effects of their serum. Dr. E. A. A. Grange, who made the experiments, informs me that the results were not good and that the serum consequently was not put upon the market. The Southern Vaccine Co., of Galveston, Texas, have for some time been experimenting with a cholera serum and now have a preparation to distribute to farmers and veterinarians for practical tests.

So far the value of their serum is not known. In Nebraska, as you are aware, the experimental station has for three years been trying a serum prepared by Dr. Peters, that I believe has given varying results.

I understand that a report from that station will soon be out, giving the results of some late experiments, which according to my information have not been so satisfactory as was hoped, especially in the way of preventing the disease.

Dr. Peters kindly informed me that during 1898 only the curative power of the serum had been tested, for previous experiments taught that its preventive quality was not very great. If when given before exposure it will not prevent the disease after subsequent exposure it seems to me doubtful that it can be

very successful as a cure. We regret to hear that in Dr. Peters' hands it has failed as a preventive, for most of us have placed our faith in its preventive action.

As is also well known, the Department of Agriculture, Bureau of Animal Industry, last year used considerable serum in Page County and have this year continued the work on a larger scale.

In an address at Omaha last September, Dr. Salmon, chief of the Bureau, stated in regard to the results obtained last year, that of about two hundred and fifty animals in infected herds over seventy-five per cent. were saved by the serum treatment. He also said that this year (up to September) the results had been better, indicating that eighty per cent. of the animals in infected herds could be saved.

I regret to say that in the limited number of experiments I have recently made for the Bureau the results have not been so good.

I have, however, only dealt with herds where the disease was very virulent and had gained a good foothold before the serum was used, and I presume did not have the strongest serum. It seems to me that it is not reasonable to suppose that any treatment will cure those that are badly diseased, and from what I have learned from different sources there is nothing yet within reach that will do this. While we may remain unable to cure the sick, especially those showing well marked symptoms, I believe, however, that a serum of sufficient anti-toxic power can be obtained to render a certain per cent. at least of swine immune. As to what per cent. ought to be saved in this way I am not prepared to say.

The Bureau has a bulletin in print giving some results of serum work. This will no doubt give us much information on the serum treatment.

Granting that it will be so successful as to warrant its use, will it be practical to use it? Can it be obtained in sufficient quantities and will the price admit of its use?

One prominent veterinarian thinks that even if successful

the treatment will have little practical value on account of the necessarily limited amount that can be produced. He states that in his State it would have taken something like 450 barrels to treat all the hogs lost in 1896.

I believe he is unwarranted in his conclusions for the reason that all our swine need not and will not be treated.

It must not be supposed, and we must not make the mistake of thinking, that the serum treatment, even if successful, is all that we need to "help us out of the woods" in dealing with this cholera question. It should be used systematically in connection with efficient sanitary regulations. If only used spasmodically here and there by a farmer, or a neighborhood, the spread of the disease will not be arrested, the loss not much reduced and little good will be done. Like tuberculin, anthrax and black-leg vaccines, and other like preparations, it can best be used under professional supervision.

Dr. Salmon states that it should form a valuable addition to the resources of the State in eradicating the disease; and we can readily see that when in early spring cholera appears in a neighborhood, if the neighboring herds could be rendered immune, it would very much assist in stamping out the outbreak. If used systematically in this way by the State authorities in all parts of the State when hog cholera appears, but a comparatively small per cent. of the swine kept would need the serum treatment.

I want to emphasize the fact that the serum treatment should be used in connection with quarantine.

The price at which serum will be furnished cannot yet be definitely determined. The Southern Anthrax Vaccine Co. state that the price will be about ten cents per dose. This, even in addition to the veterinarian's fee for using it, would not make the treatment expensive.

Dr. Peters thinks it can be produced for from ten to fifteen cents at a good profit.

Since observing the numerous Marshall County outbreaks this past season, I am more than ever impressed with the fact

that we must have a quarantine system in order to deal satisfactorily with the disease.

It certainly is easier to stamp out the disease in one herd than to treat all the hogs of a township with serum or by any other method.

In some townships the disease began in early spring in a single herd; then spread over almost all the township by extending along the highway from farm to farm.

In early spring there were probably not more than six or eight such farms in the county. Why may we not suppose that if these had been rigidly quarantined and the herds destroyed the loss would have been very light. Like other things there is often a time when it may be "nipped in the bud."

Without systematic efforts in other directions the serum treatment, no matter how successful, will not serve to control the disease. As swine raisers we must do our part in carrying out sanitary rules and regulations, and we ought to insist that the State assist us by looking after those who persist in undoing all the good work we may do by letting their herds run at large, and in other ways encouraging the spread of the disease.

Trusting that a serum of sufficient anti-toxic power will yet be produced which will very much aid in the suppression of the disease, I leave the question with you for discussion.

A CAMPAIGN OF EDUCATION.

BY DR. J. M. EMMERT, M. D., ATLANTIC, IA., EX-MEMBER OF STATE BOARD OF HEALTH.

Read before the Iowa State Veterinary Medical Association.

We have heard much the last few years of Campaigns of Education. The great political battle of 1896 was called a campaign of education, because almost every man, woman and child in this great country was studying the money question, and the most learned men on both sides of the question were employed to prepare circulars, leaflets, newspaper and magazine articles, which were scattered abroad by the million.

The question of slavery was settled by force of arms, but only after the people had been aroused by the teachings of Wendell Phillips, Lloyd Garrison and Horace Greeley.

Notwithstanding the newspaper campaigns of these men, and the eloquent addresses in the halls of Congress, the one quiet, pathetic, earnest and truthful appeal made by Harriet Beecher Stowe through "Uncle Tom's Cabin" was the "still small voice" that aroused the people to action, and slavery went down before its mighty influence.

Thus it is that in all reforms it is the quiet but persistent work by those who are devoted to the cause that will win in the end.

I have selected this subject for your consideration to-night because I regard you as a band of educated and scientific men, who are engaged in the great warfare against filth and disease, and preach the gospel of cleanliness and happiness, and I want to welcome you as co-workers in this field with the profession to which I have the honor to belong.

The day of the "Horse Doctor" is past and gone, and the educated veterinarian has taken his place, full of enthusiasm, zeal, and a desire to understand the underlying causes of disease, and, if possible, to remove them.

He is satisfied with nothing but a scientific explanation of all questions pertaining to the profession. I am rejoiced to find so many of the profession not only interested in sanitary questions, but practical sanitarians. As the people become educated to your worth, not only as veterinarians, but as sanitarians, your sphere of usefulness will extend.

You are presumed to understand the diseases of animals, both alive and dead, and able to point out and explain the difference between diseased and healthy food products, especially meat and milk. This being the case, no man in the community can be of as much benefit upon the local boards of health as the learned veterinarian, and I think the time is not far distant, or at least I hope so, when every slaughter house, meat market, dairy, or other place where food products are brought and sold,

will be inspected and under the supervision of the local boards of health. When that time does come, gentlemen, you will be called upon for your services, and the people will demand that they have the benefit of your knowledge. In fact, it is your duty as well as mine, to assist in bringing about this happy result. You understand the dangers of eating meat infected by trichina and actinomycosis, or drinking milk infected by tubercular bacilli; along with the medical profession and with sanitarians it is your privilege as well as duty, to be teachers, leaders and educators in this great work. The field is not only great but the work is grand.

No man can fill the niche in the world that God intended he should fill, and live for himself alone. What we do to elevate and make humanity better, place our fellow man upon a higher plane of usefulness, make him happier, wiser and more prosperous, will alone secure the greatest happiness for ourselves and make us feel that we have not lived in vain.

You will be confronted by many difficulties and all kinds of obstructions to be overcome in your fight against ignorance, prejudice, sordid and avaricious desire to accumulate wealth. All these obstacles must be removed or overcome before the people will understand and appreciate the fact that they have an abiding interest in the fight against filth and disease.

Your fight is in the interest of humanity; not of life alone, but the protection and preservation of property as well. I will not attempt to go into statistics to any extent to prove any assertion I may make, but suffice it to say that one-half of the deaths are caused by contagious diseases, all of which are preventable diseases and should be eradicated, and would be if proper sanitary laws were upon our statute books and heroically enforced.

The existence and spread of typhoid fever, scarlet fever, diphtheria, tuberculosis, hog cholera, trichina, and actinomycosis are *prima-facie* evidence of our ignorance or criminal negligence, and an insult to our higher civilization. The loss of life and destruction of property by these preventable diseases

are beyond our conception unless studied in the light of modern scientific statistics. Take as an illustration tuberculosis or the great "White Plague," as it is sometimes called. One out of every seven deaths throughout the world is caused by tuberculosis. Iowa contributes nine deaths every day, three thousand every year; the United States contributes one hundred and fifty thousand, and the world five millions per year.

Contemplate these figures for a moment, then ask yourself why the people are not aroused to the dangers that surround them and demand that our lawmakers, both State and national, shall enact laws to stamp out this disease, or at least prevent its fearful ravages. If a case of small-pox is reported in this or adjoining States, the State Board of Health at once makes preparations to prevent its spread. Newspapers take up the cry of danger and the people become excited and demand that the local boards of health be doubly vigilant.

Last winter the House of Representatives of this State sent Dr. Kennedy to the northern part of this State to investigate a case of leprosy, and see what was necessary to protect the State from its ravages. What a farce! This is literally straining at a gnat and swallowing a camel. More people die of tuberculosis in one month than have died of small-pox in the last ten years. The almost complete stamping out of small-pox is a beautiful example and a scientific demonstration of what can be done by preventive medicine; and to-day if the laws throughout the united world compelling the vaccination of every child at a certain age were enforced, small-pox would be in ten years a lost disease.

Now, in my judgment tuberculosis is just as easily stamped out as small-pox. It may take generations to do it, but with proper legislation, and its complete enforcement throughout the world—I mean a concerted action by all the powers of the world—will reduce the mortality due to the disease to a minimum, if not entirely wipe it out. But to do this we must start out right, we must understand thoroughly the etiology of the disease, its natural history, how its spreads, etc.

Every case of tuberculosis comes from some other case of tuberculosis in either man or beast.

There is no such thing as spontaneous generation of tuberculosis. The germs causing the disease do not arise in that way. Every germ must come from a pre-existing germ, grown in a suitable medium, and must enter a suitable medium to produce the disease in man or beast.

Now, this man or beast may be a suitable medium for the disease, but if they never get any germs into their system they will never have tuberculosis. Then what must we do to prevent their taking the disease? Why of course keep them away from the disease, and in this way keep the disease away from them. A large per cent. of the cases are caused by the inhalation of germs floating in the air, and which were thrown off by expectoration from human beings, discharges from the nostrils of animals, or from the bowels of both.

These discharges are dried and float in the air, and are drawn into the lungs, or as in animals they are rubbed in troughs, posts, or other material to be licked up by the animal.

But this is not the only way the disease can be contracted. Tuberculous meat and milk are responsible for a certain per cent. of these cases.

Meat if properly cooked may be eaten with impunity, but we do not yet understand what is properly cooked tuberculous meat. A certain temperature may kill the bacilli but not the spores. So the safest way is not to eat it at all. In my judgment a large majority of bottle-fed children who die and are reported as marasmus, cholera-infantum and other wasting diseases, are nothing more than intestinal or meningeal tuberculosis, caused by tuberculous milk.

But there is another and very important side to this question, and one which our agricultural friends are especially interested in.

The loss of cattle by this disease alone runs into millions of dollars. The property value of stock—those diseased—is hard to estimate, as no statistics to my knowledge have ever

been gathered. I know one stock raiser in my part of the State who had destroyed by our efficient State Veterinarian for tuberculosis \$5000 worth of high-bred cattle. This gentleman had a practical but very costly lesson, but he intends to profit by it, as he wrote me in answer to an inquiry that in the future every animal leaving his yard for breeding purposes will carry with it a certificate showing that it has been tested by tuberculin and is free from tuberculosis.

He also said that every animal coming on his place must have the same kind of certificates. I do not want to see every farmer in Iowa take the same lesson, but I hope they will profit by this gentleman's experience.

There is still another side to this question that touches every farmer and dairyman.

Iowa is fast becoming the greatest dairy State in the Union. I find in the Tenth Annual Report of the State Dairy Commission that there was shipped out of the State 80,032,916 pounds of butter, an increase in one year of 13,535,808 pounds, and 626,632 pounds of cheese. This only represents a certain per cent. of the product manufactured, neither does it include the raw milk used as food, and buttermilk, skimmed milk, etc. But you have some idea of the immensity of the dairy interest from these figures. Now, we must have for this product an increasing and steady market, one that is efficient.

The Secretary of Agriculture recognizes this fact, and upon taking office at once proceeded to introduce American butter into the Liverpool and other English markets. These markets have been mainly supplied by the dairy interests of Northern Europe, where tuberculosis exists, as well as, here. I believe it is an acknowledged fact that butter made from tuberculous milk will contain the bacilli.

This being the case, as long as we export butter containing these germs, we cannot expect to excel in the markets of the world.

But stamp out tuberculosis in Iowa, and then stamp upon

every case of butter that goes out of the State "guaranteed free from pathogenic germs." Make the word "Iowa" upon every case stand for "Purity" and the demand will soon be so great that the dairy interests of the State will be doubled, and Iowa will at once step to the front as the greatest dairy section in the world. What I have said about tuberculosis from a money standpoint can be applied to hog cholera. Hog cholera is a contagious disease, and consequently can be prevented and finally stamped out if the proper remedy is applied. You at once ask me for the remedy. This every sanitary and scientific student understands. It can be summed up in one word,—"*Segregation.*" Every animal when once infected should be destroyed. When I say destroyed I don't mean killed and used as human or animal food, allowed to lie and rot, or even buried, but *burned*—cremated—disinfected by fire. The township trustees, and city and corporation councils as boards of health, led by an intelligent veterinarian, should have charge of all suspicious animals, and not only order their destruction and final cremation, but do it themselves or have an officer delegated for this work.

It is not sufficient to destroy our diseased stock; we must have some means by which we can keep diseased stock out of the State. You can't destroy a stream by damming it up—destroy the source and the stream will dry up. So it is with tuberculosis and other contagious diseases among stock; destroy the disease at home, and keep outside diseased stock from coming in, and our herds will soon be free from contagious disease. The cattle and hog men tell me this kind of legislation would ruin their business. You will find that this argument is used alone by the middlemen, the men who buy and ship, and care but little whether the stock is healthy or diseased.

But take the farmers and stock raisers who take pride in their business, and who are interested in the growth and development of our beautiful State, and I think you will find them almost to a man interested in this subject, and willing and

anxious to do everything possible to stamp out contagious disease, and thereby give protection to the people and property of the State.

Now, gentlemen, the people must be educated along these lines, and when they once understand that quarantine means protection to life and property, they will not only demand that none but healthy animals enter the State, but that all diseased animals in the State shall be destroyed. Should this be accomplished a wonderful impetus will be given our stock, meat and dairy interest, and Iowa with one bound will leap to the front as the greatest stock and dairy country in the world.

[*From Merck's Archives.*]

PHYSIOLOGICAL EXPERIMENTS ON ARECOLINE HYDROBROMATE.

BY H. E. TITUS, D. V. M., AMES, IA.

I.—BOVINE.

The subject was an aged roan cow weighing eleven hundred pounds, in fair condition.

Administered twenty milligrammes of arecoline hydrobromate subcutaneously.

Normal pulse, 66; temperature, 101.4; respiration, 22.

8 minutes. Salivation.

15 minutes. Uneasiness, abdominal pains, whisking of the tail, and shifting from one hind foot to the other, with marked increase in salivation.

20 minutes. Pulse 66; temperature, 101.4; respiration 22; frequent borborygmi in left hypochondriac region, lasting for an hour after injection.

1 hour and 20 minutes. All symptoms had subsided. No local inflammation at point of injection.

II.—BOVINE.

This was the same animal as in case number one, but the injection was made two days later.

Administered fifty milligrammes subcutaneously.

Normal pulse, 70; temperature, 101.2; respiration, 16.

7 minutes. Marked salivation and increased secretion from lachrymal glands.

20 minutes. Pulse, 66; temperature, 101.1; respiration, 20; slight

muscular trembling, with elevation of the tail. These symptoms remained for an hour with frequent manifestations of pain by uneasiness.

1 hour. All symptoms had abated. No local inflammation at point of injection.

III.—EQUINE.

This was an aged sound horse weighing ten hundred and fifty pounds, in good condition.

Administered twenty milligrammes subcutaneously.

Normal pulse, 54; temperature, 101.1; respiration, 7.

4 minutes. Marked salivation.

10 minutes. Diuresis.

15 minutes. Pulse, 50; temperature, 101; respiration, 12; frequent and loud borborygmi in left hypochondriac region.

25 minutes. Liquid evacuation; respiration becoming very labored at this time, marked secretion from nasal passage.

30 minutes. Salivation had ceased, but abdominal pains and efforts at micturition were manifest.

1 hour. The physiologic symptoms had passed away. No local inflammation at point of injection.

IV.—EQUINE.

This was an aged bay horse in thriving condition, weighing about one thousand pounds.

Administered thirty-five milligrammes intravenously.

Normal pulse, 54; temperature, 101; respiration, 8.

4 minutes. Salivation and borborygmi very marked

24 minutes. Pulse, 49; temperature, 101; respiration, 3; salivation very marked; liquid evacuation.

30 minutes. Evacuation and micturition.

35 minutes. Salivation nearly ceased, but intestinal murmurs still audible.

1 hour. All symptoms disappeared, but the animal showed some signs of weakness, shifting from one hind limb to another. No inflammation at point of injection.

V.—CANINE.

This was a one-year old greyhound weighing sixty pounds.

Administered five milligrammes subcutaneously.

Normal pulse, 85; temperature, 101.4; respiration, very much increased by applying a muzzle. There were no physiologic symptoms manifest, and the pulse remained normal. No inflammation at point of injection.

VI.—CANINE.

This was the same dog as in case number five, but injection was made one day later.

Administered ten milligrammes subcutaneously.

Normal pulse, 78; temperature, 100; respiration, 20; no muzzle being applied.

4 minutes. Nervousness and muscular trembling with depression.

5 minutes. Salivation and muscular trembling; animal uneasy and walking around in the box. Successive fluid evacuations—eight in ten minutes; intestinal murmurs very loud.

10 minutes. Dog down and body-surface cold; pupil of eye much contracted.

45 minutes. All symptoms subsided, and the dog was able to run about; no local inflammation at point of injection.

VII.—EQUINE.

This was a gray mare in good condition, weighing eleven hundred pounds.

Administered fifty milligrammes subcutaneously.

Normal pulse, 42; temperature, 99; respiration, 17.

3½ minutes. Salivation and borborygmi very loud.

8 minutes. Animal shows evidence of abdominal pain by uneasiness.

10 minutes. Fluid evacuation.

12 minutes. Fluid evacuation; salivation by this time is profuse.

15 minutes. Pulse, 48; temperature, 99.4; respiration, 25; body-surface quite warm, but thermometer shows no appreciable rise; faecal passage.

20 minutes. Pulse, 43; temperature, 99.4; respiration, 23; faecal passage and profuse sweating.

25 minutes. Evacuation, muscular trembling and respiration very labored; animal showed signs of being very weak; the body at this time is covered with cold sweat.

30 minutes. Animal began to recover from the effects of the arecoline.

1 hour and 15 minutes. All symptoms had passed away with the exception of weakness.

VIII.—EQUINE.

This was a bay mare, eight years old, weighing thirteen hundred pounds, that was taken sick with flatulent colic.

Being very tympanitic, she was first punctured with the trocar.

Administered thirty-five milligrammes subcutaneously.

4 minutes. Uneasiness, intestinal murmurs, and salivation.

15 minutes. Fluid evacuation, with much flatus.

1 hour and 30 minutes. Animal was out of danger. No inflammation at point of injection.

IX.—EQUINE.

This was a fourteen-hundred-pound black gelding that developed acute laminitis.

Administered thirty milligrammes subcutaneously.

5 minutes. Salivation and borborygmi.

16 minutes. Evacuation.

1 hour. Administered subcutaneously thirty milligrammes of areco-

line. The same physiologic action was repeated. In four days the animal was apparently sound. No local inflammation at point of injection.

X.—OVINE.

This was an aged sheep in emaciated condition.

Administered five milligrammes subcutaneously.

5 minutes. Salivation and intestinal murmurs. No very marked action was manifest. Sheep died before a second injection could be made.

XI.—BOVINE.

This was a two-year-old short-horn ox that had been sick for several weeks with chronic indigestion.

Administered subcutaneously sixty milligrammes of arecoline hydrobromate in two doses three hours apart.

5 minutes. Salivation and intestinal murmurs with the same symptoms before manifest. This was followed by a line of treatment indicated by the case. Animal began to show some signs of improvement in ten days. No local inflammation at point of injection.

XII.—BOVINE.

This was an aged black cow, weighing about eleven hundred pounds, with engorged rumen.

Administered twenty-five milligrammes every two hours, until seventy-five milligrammes had been administered.

Physiologic action was manifest at each injection.

6 minutes. Salivation, much pain and intestinal murmurs. Cow made a complete recovery in twenty-four hours. No local inflammation at point of injection.

XIII.—BOVINE.

This was a six-year-old red cow sick with parturient apoplexy.

Arecoline hydrobromate was administered for its cathartic effect.

Administered fifty milligrammes subcutaneously in two doses, one hour apart.

Slight physiologic action manifest at each injection.

Animal died.

XIV.—EQUINE.

This was a five-year-old brown mare that developed acute laminitis in all four feet; could hardly be made to move.

Administered twenty-five milligrammes every hour until four doses had been given.

The physiologic action was well marked at each dose, with

the exception of the last, and then it was not so severe. This animal made a very rapid recovery, and in twenty-four hours was able to move at a trot.

No inflammation at point of injection.

REPORTS OF CASES.

“ Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

SPASMODIC ASTHMA.

By W. F. DERR, V. S., Wooster, Ohio.

During the summer of 1898, I had occasion to treat a four-year-old horse for a dry short chronic cough for several months and under which treatment he improved in his general condition as well as his cough. I, however, informed the owner that his cough was of a broken-winded order and that the case might eventually terminate in heaves.

On August 30th I received a telegram to come and see him, when I found him as follows: The horse was stabled in a bank barn very close and hot at the time. The party owning the animal was doing his fall thrashing, and the dust from the machine going into the barn, and of which he had to inhale a good quantity, undoubtedly produced constriction of the bronchial and pulmonary air tubes. His respirations at the time being very laborious, I got him out of the barn as soon as I possibly could, which excited him some, he being very nervous. He fell down, and I thought he would never rise again.

I had really not yet made a diagnosis, but thought it a case of acute laryngitis. I opened the trachea while he was down by making an incision of about three inches, but from which he got no relief whatever. In the meantime he was got on his feet again, and after opening the orifice in the trachea he fell down again. I saw instantly that I had a case of spasmodic asthma to deal with. I then gave him $2\frac{1}{2}$ grains of morphia hypodermically, also 31 of fl. ex. stramonium injected into his mouth. The pulse at this time was small, feeble and very irregular, the respirations loud enough to have easily been heard one hundred feet. In about five minutes after the injection of the morphia he seemed to get great relief. I thought this rather quick from the morphia, but at the end of a few minutes more he was again gasping for breath, with mouth and nostrils wide

open. I again opened the orifice in the windpipe, which instantly aggravated his respirations and coughing to such an extent as to make him rear up and fall down, his spasms being so great at the time. He would get better every 15 to 20 minutes, then get worse again, showing the case to be purely of a spasmodic nature.

At the end of about two hours I again injected $2\frac{1}{2}$ grains of morphia. At the end of about four hours the case seemed to be progressing very favorably, when he became excited at the barking of a dog close to him, and to all appearances he got as bad as ever again. He would open his mouth and nostrils to their utmost capacity, rear up and fall down. I certainly thought this was the last fall he would ever have, it being very hard as well as rolling into a ditch, in which there was about two feet of water. He was got on his sternum and out of the ditch as soon as possible, rubbed some, when his respirations again became tranquilized. The circulation at this time was almost imperceptible and very irregular, counting about 120 beats per minute; his body cold and clammy from the bath he had received; temperature 103.6° .

From this time on he gradually began to improve, which improvement seemed to be permanent, so that at the end of about seven hours his respirations were about normal, pulse 59, still somewhat irregular; temperature 102.8° .

I now gave him another \mathfrak{z} i of fl. ex. stramonium, with \mathfrak{z} v of aloes and \mathfrak{z} i of calomel. Ordered the man to keep him where he had him until 9 P. M. before again putting him into the barn. I visited him again on August 3, when he had entirely recovered, his pulse 42, temperature 100.8° , respiration normal. Bowels had not moved during the night, for which I gave him an enema, when he evacuated a large quantity of fæces; had eaten a bran mash and outside of the incision in the trachea you would hardly believe how near his call had been twelve hours before.

I now prescribed fl. ex. lobelia, fl. ex. stramonium, *aa* \mathfrak{z} i; liquor arsenit. potass., \mathfrak{z} xiii; of this mixture he received a tablespoonful every eight hours in bran and oats, with a small amount of good clean timothy hay. On September 7th I again had a call; the owner said he found him in a bad condition at 5 A. M., but was greatly improved at my arrival. His bowels being somewhat constipated, I gave him a cathartic. On the 13th he had another attack, but of a mild character, since which time he has been doing well. The cough that he had at the

time of the first attack of a broken-winded nature has entirely left him, and at the time of writing this article is fat, sleek and ready for market.

In looking through my library I fail to find anything on spasmodic asthma in any of our latest works.

TWO CASES OF RIGID HYMEN—ONE CAUSING DIFFICULT LABOR WITH FIRST CALF.*

By A. G. ALVERSON, V. S., Bloomington, Ill.

Called one cold evening during the winter, to deliver a heifer, I found animal a little less than two years old and well developed, suffering under extreme labor pains and having been in same condition for several hours. Dressed, or rather undressed for the occasion and began my examination, being for a time somewhat bewildered with what I found. Just between the lips of the vulva, and almost protruding from the orifice was the intact hymen, resembling mucous membrane in appearance, fluctuating under pressure, but a barrier to progress far up the vaginal canal. Nearly in the centre the tissues were drawn in cicatricial form, indicating that the penis of the male had penetrated the membrane at the time of copulation and subsequently healed.

It was with some difficulty, and by first using the knife, that the obstruction was overcome. There seemed to be more than the usual amount of liquor amnii, and had no farther trouble in delivering the calf, which was dead, and having the appearance of having been drowned in the contained fluid.

Saw recently in a filly a case which might have gone on to the same termination if the organ and act of copulation had been the same as in the former animal. She was a finely bred roadster, one year old, passed, and trotting in pasture a fold of the membrane would show at the lower part of the vulvar fissure; when at rest nothing was noticeable. As the filly was being reserved for breeding purposes, she was brought in for examination. Found here also an entire hymen and an excess of tissue in same which allowed it to protrude when shaken back, or it could be pushed in well up the os. More easily broken down than in the other case and showing no indication of scar tissue. Have seen several cases where a part of membrane was discernable, but never but the two which were complete.

* Read before the Illinois State Veterinary Medical Association, Feb. 15, 1899.

FATTY DEGENERATION OF A DUCK'S LIVER PROBABLY DUE TO TUBERCULOSIS—POST-MORTEM.

By A. F. LANGE, D. V. S., San Antonio, Texas.

A somewhat unusual specimen—at least so to me—quite interesting, I thought, it being the first of that nature having come under my observation, and, being taken from a duck, I could hardly let it pass by without notice. The specimen in question was that of a *duck's liver*, very much enlarged, weighing about ten ounces, oval in shape, with the appearance of a lipoma, having nodules externally from the size of a pin head to that of a pigeon egg. Upon section of this specimen I found a fatty mass infiltrated with caseous deposits, the whole representing a part having undergone destructive metamorphosis, the nodules also presenting a similar appearance. I was resolved to have a microscopical examination made, and Dr. Menger, M. D., a friend of mine (somewhat interested in the specimen himself), agreed to make the examination. Next day the following report reached me, with the information that the specimen contained a great amount of *tubercle bacilli*, and that the examined particles from the nodules were thoroughly impregnated with the bacilli mentioned. I could not obtain any history in regard to this duck or its actions, and therefore am unable to speak of symptoms in this particular case. The duck was bought from a vendor for consumption and I have seen it alive and thought it to be in a pretty fair condition. After this bird had been killed my attention was called to it and I found it to be in a very poor condition indeed, and it seemed as if all the fat it should have had was stored in the liver. I regret being unable to say more about this case, but the sought for information was not obtainable.

RUPTURED DIAPHRAGM.

By FRANCIS ABELE, V.S., Quincy, Mass.

Was called to a horse that had had flatulent colic some hours before. Homeopathic remedies had cured his trouble. The driver was uneasy about the horse's breathing, so sent for assistance. Found horse quiet, but with powerful abdominal breathing. Attempted to drench with oil and ether, etc., and found it brought spasmodic pains, so desisted. During the night horse acted well, pulse was quite fair. In morning offered him water; allowed him a quart, led him to grass, would eat cautiously; tied him out; prognosed fatal termination. Advised quiet and lightest of concentrated food fed often. He died on the first ap-

plication of the treatment. He could stand no load whatever on his stomach. I recite this case as a most typical one of ruptured diaphragm. Doesn't it seem as if I could have prevented that rent from enlarging and have slowly healed it up?

OCCLUSION OF VAGINA IN MARE.

By W. H. CURTISS, D. V. S., Marengo, Ill.

Bay mare, 1200 lbs., in good condition. Had been delivered of dead foetus last spring. Worked all summer. In January was brought to my place for treatment. Protruding from vagina was what appeared to be a tumor. Would protrude six inches when mare attempted to urinate. There appeared to be a membrane formed across middle of vagina upon examination. Explored with trocar and obtained creamy pus. Then lanced and obtained about two water buckets of pus. Found that pus filled the womb. I irrigated the womb with warm solution of creolin every day for a week. Mare made good recovery. How did the membrane form across the vagina?

MARE CARRIED ONE LIVE AND ONE DEAD FŒTUS FOUR MONTHS.

By W. H. CURTISS, D. V. S., Marengo, Ill.

At six months there were strong symptoms of abortion, which finally passed off. At ten months premature birth of one well developed foetus that died soon. Also delivery of a partly decayed foetus. Mare did well.

SIAMESE TWINS.

By W. H. CURTISS, D. V. S., Marengo, Ill.

A short time ago was called to Mr. P.'s farm. I took a pair of twins from a large Holstein cow. The twins were joined together at the short ribs. The connection was eight inches long and ribbed across. Removed most of one foetus with knife. Cow made good recovery.

DILATATION OF ŒSOPHAGUS.

By W. H. CURTISS, D. V. S., Marengo, Ill.

Grey horse, eight years old, weight 1300 lbs., was taken with colic. Vomition very severe, resulting in dilatation of Œsophagus for 12 inches in cervical region. Death four days after attack.

EXTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

BIT INJURIES [*By J. A. Nunn, F. R. C. V. S.*].—The article refers to the various conditions that are somewhat frequently met at the bars between the incisors and molars. The author, after a review of the various modes of treatment which he has used according to the extent of the injury, and recording the non-success that he has met with, advocates the use of the actual cautery as a means by which he has obtained great benefit. He says: "I now employ the actual cautery to the part and have done so for some years past. No doubt it sounds barbarous and savoring of the days of the farrier and horse-leech, but nevertheless in my hands it has stood the test of time. I use the thermo-cautery, but it can be done perfectly with an ordinary sharp-pointed firing iron, if care be taken to pack the mouth with a damp cloth to prevent the cheeks and tongue from being injured." The operation is done with the horse standing up.—(*Veterin. Journal.*)

CONTAGIOUS ACNEA (?) [*By William Tart*].—Under that denomination the author relates the case of a cutaneous eruption which appeared on a gelding two days after clipping. There were numerous elevated papules varying in size and scattered all over the back, flanks and croup. They were more numerous where the harness fitted. Many of these papules formed abscesses varying in size from a pea to a hazel-nut. They lasted three weeks, the treatment consisting in alterative medicine and local astringent and antiseptic lotions. In a week after the first visit, another mare which had used the same harness became also affected, but not as extensively as the first.—(*Veterin. Journal.*) [This eruption is not uncommon and is frequently observed in horses after clipping. Its parasitic nature is admitted by many.—EDITOR.]

DOG SWALLOWED A SKEWER — ABSCESS — RECOVERY.—Foreign bodies introduced into the digestive canal sometimes behave curiously. Mr. J. B. Tint tells in the *Veterinary Journal* of the case of a dog which had vomiting and was treated for mild digestive trouble. A few days later a swelling appeared between the ninth and tenth ribs on the left side. When the dog turned sharply round, he would fall and cry out. After some twenty days, the swelling fluctuated and was opened, but left a large cavity, from which an ugly discharge escaped.

Hepatic abscess was suspected. However, the wound was probed, but the cavity being too deep for the bottom to be reached, it was freely opened and exploration made with the finger. This came in contact with a sharp piece of wood, which was extracted and proved to be a skewer, $6\frac{1}{2}$ inches long, made of American oak. Swallowed in a piece of meat, it had made its way out through the stomach, liver and diaphragm. The dog recovered.

SWALLOWING A STICK.—The above case reminds Mr. J. Blakeway of one somewhat similar. A seven months' St. Bernard pup was brought to him; he eats nothing and for over a week is starving to death; he is lame on the near fore leg, had a swelling in one of the intercostal spaces on the near side and also about half way down the neck in the course of the œsophagus. Œsophagotomy was performed and a portion of a candle rod (used in the manufacture of tallow candles) was extracted. It measured one foot and half an inch in length, and barely as thick as an ordinary candle. There was no further trouble, except the formation of an abscess at the intercostal space, which was lanced and soon disappeared. The owner ascertained that his children used the candle rod to trundle their hoops; the dog was very playful, he jumped up at one of them with his mouth open, the child gave the stick a push, and it disappeared down the dog's throat.—(*Veterin. Journal.*)

OVARO-HYSTERECTOMY IN A DOG [*By G. H. Golding, M. R. C. V. S.*].—Another success of antisepsy in abdominal surgery. Irish terrier bitch is pregnant and her owner wishes her to be destroyed, as it is the third time she is in that condition; but as she is a favorite pet, he consents to have her operated upon. The operation was done under as strict antiseptic measures as possible, and after due preparation carried out as follows: I first inserted a blunt probe into the vagina as far as the os uteri. I then made a longitudinal incision through the skin about two inches long, close to the median line, about an inch and a half in front of the pubis, then through the abdominal muscles with director, carefully stopping all bleeding. I then introduced the fore finger of my right hand into the abdomen to feel for the probe. Having secured it, I followed up each horn until the ovary was brought in view. I ligated above and below each ovary with silkworm gut before removing. I then placed two ligatures of silkworm gut around the body of the uterus, one at the junction of the horns and one just below, and cut between them. After removing the uterus and returning

the strings into the abdomen the cutaneous wound was closed. The little patient was sent home after ten days in full convalescence.—(*Veterin. Journal.*)

SEPARATION OF UPPER EPIPHYSES OF BOTH HUMERI IN A MARE [*By H. Thackeray, Student Royal Vet. College, London*].—This is very interesting, probably unique, in that only an imperfect history could be obtained and explanation scarcely given. A three-year-old mare is turned loose in a small croft, where at midday she is seen feeding quietly, and half an hour after found down and unable to get up. There is no external signs of injury, except large swelling at the point of the shoulder. By examination and manipulation an apparent fracture of the upper end of the humerus is revealed. To place the mare in slings, she is turned over and then a similar condition is found on the other shoulder. The mare was destroyed. At post-mortem the upper epiphyses of both humeri were found separated from the shafts of the humerus, remaining in their normal positions, in apposition to the glenoid cavity and the capsular ligament intact. The sharp ends of the body of the bone had underrun the muscles at the posterior borders of the scapulæ and formed pockets filled with granular masses of coagulated blood with small spiculæ of bone.—(*Jour. Comp. Path. and Ther.*)

CRYPTORCHIDY—[*By F. Hobday, F. R. C. V. S.*].—Methods of operating upon cryptorchids are numerous and are well known. The author records eight cases where antisepsy has assisted him in obtaining as many recoveries. Chloroform was not used in all his cases; but is certainly advantageous. Of these 8 cases, 3 were cryptorchids of the left testicle, 3 of the right, 2 of both organs. All but one were removed shortly after the operation, one immediately walked about five miles, 3 were removed the next day, one only remained a few days with the author after the operation. It was his fourth case, one of double cryptorchidy with the right testicle at the upper extremity of the inguinal canal, almost in the abdomen; whilst the left one was in the abdominal cavity itself, floating among the intestines.—(*Jour. Comp. Path. and Ther.*)

GERMAN REVIEW.

By PROF. OLOF SCHWARZKOPF, Flushing, New York.

OPERATION AGAINST CRIBBING.—Diekerhoff's operation against cribbing of horses by the subcutaneous myotomy of

the sterno-hyoideus and sterno-maxillaris, has now been largely tried in practice. An interesting report on this operation is found in the annual veterinary report of the Prussian Army (year 1897), in which a large number of cases are described. It appears that the operation is generally successful, and immediately stops attempts at further cribbing. Interesting cases are cited where old cribbers tried to perform this act right after the operation, but without success. In some instances cribbing was again noticed after a lapse of four days to two months, but generally the horses did not relapse into their old habit.— *Berliner Thier. Woch.*)

THE MICROBE OF CARCINOMA.—Dr. Furgeus describes in a paper read before the Berlin Medical Society the protozoa of the carcinoma. He found them in a tumor adhering to the bronchi; The pathogenic organism appears as a spindle-shaped body with very small spores. The latter become free, and by amœboid motion enter partly into the epithelial cells of the tumor, partly they remain in the intercellular spaces. They grow best within the cells and finally occupy the whole cell-body. He classifies these microorganisms as gregarina.— (*Berlin. Thier. Woch.*)

ANTITOXINS. — The great success achieved by the antitoxin treatment of swine erysipelas during the summer of 1898 has apparently stimulated the preparation of antitoxins for the other infectious swine diseases. There are now two antitoxins for swine plague and swine pest on the market, one prepared by Dr. Beck, the other by Dr. Schreiber, each claiming first recovery. Dr. Schreiber's antitoxin in so far differs from the other, as he offers two distinct kinds of antitoxin, one as a preventive, immunizing hogs for five months, the other as a curative for diseased animals. The application of the serums is the same as in other antitoxin treatments.— (*Berl. Thier. Woch.*)

VETERINARY EXAMINATIONS.

QUESTIONS SUBMITTED TO CANDIDATES FOR THE LICENSING DEGREE BY THE BOARD OF VETERINARY MEDICAL EXAMINERS OF NEW YORK.

At the sixteenth veterinary examination, held in New York City, January 24 to 27, the following questions were propounded with these instructions :

"Answer any 10 of the questions on this paper but no more. Check the number (✓) of each one of the questions you have answered. Unless otherwise stated all questions relate to the horse."

Anatomy.—Describe the superior maxillary bone. 2. Describe the bones and ligaments of the fetlock-joint (metacarpophalangeal joint). 3. Describe the flexor metatarsi muscle. 4. Describe the pulmonary circulation. 5. Describe the trigeminal (trifacial or fifth cranial) nerve. 6. Give the names and location of the principal groups of lymphatic glands. 7. Describe the larynx. 8. Describe the kidneys. 9. Mention in order the stomachs of the ox and describe the third stomach. 10. Describe the parotid salivary gland, including its duct. 11. Describe the uterus of the mare. 12. Of what structures is the spermatic cord composed? 13. Describe the cerebellum. 14. Describe the diaphragm of the ox. 15. Describe the mammary glands of the cow.

Physiology and Hygiene.—1. State the difference between animals and plants in respect to mode of growth. 2. Describe animal cell life. 3. State the functions of the blood. 4. Mention the proteids of the blood. Describe a red blood-corpuscle. 5. Define *pulmonic circulation*, *systemic circulation*, *cardiac cycle*. 6. Mention the functions of the saliva, giving average daily secretion. 7. Describe the physical peculiarity of the stomach in ruminants. 8. Give the source of animal heat. 9. Describe reflex action as it is manifested in the fibres of an afferent and an efferent nerve root. 10. Mention the *three* classes of sympathetic nerve ganglia, stating the function of each. 11. Mention the diseases incident to faulty feeding. State the effect of impure water as a source of disease. 12. How should a stable in which tuberculous animals have been housed be cleansed and disinfected? 13. Describe the proper method of procedure in an incipient case of glanders. Explain. 14. How should a dairy stable be constructed? What should be the character of its contiguous surroundings? 15. Mention diseases of the lower animals that render flesh unfit for human food.

Chemistry.—1. Define *molecule*, *atom*, *element*, *acid*, *base*. 2. What is *ozone*? Give its formula and properties. 3. Describe the preparation and give the properties of carbon monoxid. 4. Mention the properties and uses of potassium permanganate. 5. What are *alcohols*? Mention *three* different forms of alcohols. 6. What is *glucose*? For what purpose is it generally used? 7. What are *alkaloids*? 8. What is *fibrin*? 9. State the cause

of albumin in the urine. 10. Mention the best test for hemoglobin. 11. What is the indican of urine? 12. What are *ptomaines*? 13. What are *leucomaines*? 14. What are *fats*? 15. State the properties of ferrous sulphid.

Surgery.—1. Describe the processes of the healing of wounds. 2. Describe septicemia and pyemia. 3. Give the symptoms of actinomycosis, botryomycosis and bursatee. 4. Give the sources and prevention of wound infection. 5. Give the clinical diagnosis of nasal glanders, strangles, nasal tumor, suppuration of the guttural pouches and tumors or suppuration of the fangs of the upper molars. 6. Give the treatment of pus collections in nasal sinuses. 7. Give the symptoms and treatment of penetrating wounds of the chest. 8. Describe technically the manipulations in rumenotomy in the cow, and in trocarization of the rumen of the cow and colon of the horse respectively. 9. Describe vaginal ovariectomy in the mare and in the cow. 10. Give the diagnosis of navicular disease. 11. Give the treatment of open joint. 12. Give the diagnosis of bone spavin. 13. Give the pathology and treatment of ring-bone. 14. Give the pathology and treatment of tendo-vaginitis. 15. State the dangers attending chloroform anæsthesia and show how they may be avoided.

Obstetrics.—1. Mention and describe the lateral ligaments of the sacrum and pelvis. 2. State the differences between the male pelvis and the female pelvis. 3. Describe in detail the ovaries of the cow. 4. In a milch cow, what effect does a succeeding pregnancy have on the flow of milk? 5. Explain the secretion of milk. 6. Describe the milk of a cow, giving its specific gravity and its chemical analysis. 7. Give the method of delivering an anterior presentation (fore limb crossed over neck). 8. Give the method of delivering an anterior presentation (downward deviation of the head). 9. Draw diagrams of at least *two* kinds of trusses used in the treatment of prolapse of the vagina. 10. What is *hydrocephalus*? Give its diagnosis and state how it complicates labor. 11. What is meant by *agalorrhæc*? Give the treatment of agalorrhæa. 12. Describe the development of the respiratory apparatus. 13. State the difference between the mammæ of the cow and those of the pig. 14. At what period are pregnant animals subject to colic? Give treatment. 15. Give the method of delivering an anterior presentation (deviation of the hind limbs in the pelvis).

Pathology, Diagnosis and Practice.—1. Give the morphologic characteristics of the different classes of pathogenic bacte-

ria and state in general terms how these bacteria cause disease. 2. In what does immunity consist, and how may it be conferred when not present from birth? 3. Under what conditions does bronchial dilatation occur? How may it be recognized and treated? 4. Give the symptoms of pharyngeal tubercle. How may it be distinguished from other pharyngeal diseases? 5. Describe cowpox and horsepox. What is their mutual relation and what precautions should be taken to prevent their propagation? 6. State the class of animals susceptible to strangles. Give the lesions and symptoms of strangles in its regular and irregular forms. Mention its treatment and the best methods of prevention. 7. State the causes, symptoms and treatment of twisting of the double colon. 8. Diagnose (*a*) simple spasmodic colic, (*b*) intestinal indigestion with tympany. Give the treatment of each. 9. State the causes, symptoms and treatment of tetanus. 10. Give the causes, symptoms and treatment of hemoglobinuria. 11. Give the symptoms and treatment of acute lead poisoning in cattle. 12. Give the probable causes, the lesions, the diagnostic symptoms and the treatment of diarrhœa. 13. State the usual causes, the symptoms and treatment of vertigo. 14. Describe infarction of the lung, state how it is produced and give its probable results. 15. State the usual causes, the lesions, symptoms and treatment of endocarditis.

Therapeutics and Materia Medica.—1. What is *tar*? Give its uses and action. 2. What is *terebene*? Give its uses and action. 3. Give the sources of lithium. Mention the physiologic effects and the uses of lithium salts. 4. What is *cascara sagrada*? State its uses and the dose for the horse and the dog. 5. What is *apomorphin*? State its uses and the dose for the dog. 6. What is *mustard*? State its uses and the doses prescribed. 7. What is *ether*? State its physiologic effects, its uses and the dose for the horse, the cow and the dog. 8. Give the symptoms and treatment of atropin poisoning in the horse and the dog. 9. Give the symptoms and treatment of aconite poisoning. 10. For what diseases is opium prescribed? 11. What are *mineral acids*? State their doses. 12. What is *woorara*? Give its effects and uses. 13. What remedies are used for the destruction of ascarides? 14. The dose of a medicine given by the mouth being one grain, what would be the equivalent dose for hypodermic use? 15. Define *materia medica*.

WHEN writing to advertisers, please say that you saw their advertisement in the REVIEW.

BIBLIOGRAPHY.

DISEASES OF THE BLOOD AND GENERAL DISEASES—DISEASES OF THE KIDNEYS.—
(Maladies du Sang, Maladies Generales et Maladies des Reins.) By C. Cadeac,
Professor of Clinical Medicine at the Veterinary School of Lyon. One volume,
16mo, 323 pages. Illustrated. Published by J. B. Baillière & Sons.

With remarkable regularity, Prof. Cadeac keeps on with the publication of his work on the special pathology of domestic animals. The first three volumes treated of the diseases of the digestive apparatus. The fourth considered the affections of the respiratory system. The fifth presented the diseases of the organs of circulation. The present volume treats: (1) Diseases of the blood and of general diseases (progressive pernicious anæmia, lymphadema, paludism, surra, parasites, hæmorrhagic septicæmias, cholera, hæmoglobinemia, infectious paraplegia, canine distemper, strangles, gangrenous coryza, anasarca); and (2) diseases of the kidneys (renal congestion, infarction of the kidneys, nephritis).

Prof. Cadeac studies diseases apparatus after apparatus; each organs forms a chapter which in its turn contains a series of articles covering all types of alteration that the organ may have gone through. This adopted order of classification for all diseases is the anatomical order.

Domestic animals, differing in the anatomical point of view, there must be correlative differences in their pathogeny. Each animal species has its own diseases. It was necessary to adopt one pathology for each animal. This is the excellent method adopted by Prof. Cadeac.

There is no work that has been wanted more than a *treatise of internal pathology of the domestic animals*. After gathering for ten years all the necessary material, the author has made it a thorough work. A convinced advocate of the microbian theory, it is from the work of Pasteur and his followers that Prof. Cadeac has taken the enthusiasm and the spirit with which he carries his work to the end.

PAPERS AND ADDRESSES, NEW YORK STATE VETERINARY COLLEGE. Being a collection of the literary contributions by the members of the instructing staff of the New York State Veterinary College, for the years 1896–1898.

Since the organization of the present faculty of the State College the members have contributed quite generously to the professional periodicals, as well as to the programmes of the National and State Veterinary Medical Associations, and as these have reached the pages of the various publications, reprints of uni-

form size have been secured ; and now they have been incorporated between the covers of a neat volume bearing the above caption, and supplied gratuitously to many members of the profession of the State, forming a valuable addition to their libraries in original articles of research and experimentation. A majority of these are reprints from the REVIEW and the "Proceedings of the U. S. V. M. A." The most prolific of the writers are Profs. Law, Williams, Fish, Moore and Gage, while other articles are by Drs. Hopkins, Kingsbury, Reed and Stanclift. An appendix gives the catalogue of the college.

MERCK'S MANUAL OF THE MATERIA MEDICA FOR 1899, together with a Summary of Therapeutic Indications and a Classification of Medicaments. New York : Merck & Co.

The well-known drug house of Merck & Co. have sent forth their little manual for 1899, and for compactness, completeness, and reliability as a ready reference book covering the entire eligible materia medica, it is unique and valuable to the physician and veterinarian. It not only contains the essential data of the large dispensatories, but places at a glance before the practitioner in pocket form the newest facts in the field which it covers, bringing it right down to the date of its issue. Part I. affords at a glance a descriptive survey of materia medica ; Part II. a summary of therapeutic indications ; and Part III. a classification of medicines according to physiologic actions.

REVIEW OF BIOLOGY.

RELATION BETWEEN THE FORM OF THE BRAIN AND THE SIZE OF THE DOG—[*By Dheré and Laprique*].—If one examines a series of brains of adult dogs, made according to the weight of the animals, a systematic change is observed in the forms of the organ ; those of the smaller dogs present, according to the direction they are looked at, a round form, spherical like ; in larger animals they appear, compared to the first, flattened in the vertical direction, elongated in their antero-posterior axis, the frontal region having a sudden transversal depression, making on the outlines of the *norma verticalis* a notch which does not exist in smaller groups. The authors have made a certain number of measurements which have shown them a systematic variation of the form in function with the size of the dog and of that alone ; indeed, the character of breeds as individual variations, disappear by the use of averages. They have

not noticed the breed, because generally, in dogs found in pounds, it is impossible to establish the breed; but they observed that each group contains various breeds, and that whether mixed or pure the only characteristic element of the groups is the mass of the body. However, it is to be noticed that individual indications do not present such differences that averages become of erroneous value; all little dogs are really more or less brachycephalous, the large ones more or less solichocephalous. The very different aspect of the heads of the various breeds is due to the variations of the face and not of the cranial cavity; this is independent of the aspect of the head or is sometimes influenced in a very different sense.—(*Soc. of Biology.*)

UPON A NEW TRICHOPHYTON GIVING HERPES IN HORSES [*By Natruchot and Dassonville*].—An epizooty of herpes affected 40 horses in a regiment. Several of the men who took care of them had eruptions, principally on the neck. To establish the nature of the parasite and see if the disease of the men could be attributed to it, trials of culture and inoculations were made. Cultures made with the hairs or crusts from the herpetic spots gave a trichophyton which grew specially well on Sabourand media, carrots and potatoes. Numerous oval spores were found at the lower part of hairs pulled from the herpetic spot. Round the hair are ramified mycelium threads, partly transformed into spores. In artificial cultures, the trichophyton appears as an abundant mycelium, with wide threads, with few divisions, ramifying generally at right angles. Spores grow laterally in bladder-like buds. The mycelium threads are transformed into reproducing chlamydospores like the lateral spores. The fungi seem to belong to the ascomycetes species of the gymnoascious group. A physician inoculated with the trichophyton has had a characteristic herpes. In guinea pigs two inoculations gave positive results.—(*Soc. of Biology.*)

UPON ANKYLOSTOMIASIS OF HORSES [*By Stefan von Ratz*].—In 1896 Dr. von Rathonyi announced the discovery of eggs of ankylostome of man in the fæces of horses, and concluded the horse as the primitive host of this worm. Prof. Railliet refuted the opinion of the Hungarian physician and declared that the supposed eggs of ankylostomi were simply eggs of sclerostomes. Prof. von Ratz has renewed the study of the question upon the same horses that von Rathonyi used for his observations. After long and minute recherche she arrived at

the same conclusion as Railliet. It is quite proper to affirm to-day that ankylostome of man does not exist in horses, no more than in dogs.—(*Soc. of Biology.*)

RETURN OF LIFE BY RHYTHMATIC COMPRESSION OF THE HEART DURING CHLOROFORM SYNCOPE OF DOG [*By Tuffier and Hallion*].—In a dog, anæsthesia by chloroform has been carried as far as complete arrest of respiration and as far as complete disparition of all arterial and cardiac pulsation. When all signs of life have ceased, an incision is made along the sixth intercostal space, the heart is exposed and rhythmic regular pressures are applied upon it for one minute. Soon the spontaneous systoles return and the heart resumes its function. The ribs are brought back in their place, the muscles and skin sutured and the animal survives. Without being able to be precise, the authors state, that the duration of time after which this method can be still successful, is considerable.—(*Soc. of Biology.*)

CORRESPONDENCE.

PECULIAR SYMPTOMS IN A NUMBER OF HORSES.

WOODBURY, L. I., January 5, 1899.

Editors American Veterinary Review:

DEAR SIR:—Can you give me any information in regard to these horses? I was called to see a horse last February; his temperature, pulse and respiration were all normal until you started him; then he could walk about a quarter of a mile, or if he trotted he could only go about two hundred feet; then he would act just like a horse that was choking; he would throw himself and gasp and flounder for about two or three minutes; then he would gradually grow easier and in five minutes would be on his feet again, seemingly all right. If you started him again he would go through the same thing. In about a week the two horses that were in the barn with him were taken the same way. I called a veterinarian in consultation, and he claimed he had often seen the disease in the Western States and said he thought he could help them. He gave them strychnine for a while, but he did them no good, and gave them up. They were sold to a dealer, and I could not find where they went.

To-day I was called to see a team of horses suffering in the same way. They were about six miles from where the others were. One was taken a week ago and the other yesterday. The one that was first taken I shot to-day and examined him

from his mouth to his lungs inclusive and could find nothing abnormal. The other I am going to keep until I hear from you. I have put him in a barn, where no other horses are kept, and will keep him there. Although the same veterinarian called in the other cases says there is no danger of the other horses getting it, why did one horse become so and then the other two, all that were in the barn in the first case? And in this case the team that have been worked together and stood together are affected? I have never seen anything of the kind nor have I seen it described. If you can help me any, will you please do so at your earliest convenience.

Yours respectfully,
D. B. DOUGHTY.

OPERATIONS FOR STRINGHALT.

WAUSEON, OHIO, January 7, 1899.

Prof. A. Liautard:

DEAR SIR :—I write you for information as to the operation described for springhalt on page 576 of the November number of the AMERICAN VETERINARY REVIEW. I do not understand which tendons the writer means he cut off the second time. I understand that the peroneus or extensor pedis brevis was the first tendon cut off, but then in the second operation I do not know what one he means. Please help me get the right of it, if you please.

The reason I am so anxious to know is I have a horse I drive that I bought which was springhalted in both hind legs. I cut off the peroneus or extensor pedis brevis in each leg, and in two weeks he was cured. That was in December, 1896, and the horse continued all right till last week, when he began to jerk up the right leg.

If I can get to understand the article on page 576 of November REVIEW I will try it.

Yours respectfully,
A. J. KLINE.

[The second tenotomy was done on the same tendon (the lateral extensor), but below the first operation, a little above its union with the tendon of the anterior extensor.—A. L.]

THE LAST DAYS OF THE LATE DR. MEYER.

2230 ST. JAMES AVE., CINCINNATI, Feb. 24, 1899.

Editors American Veterinary Review:

GENTLEMEN :—Accept the most heartfelt thanks from myself and family for the kind tribute tendered to the memory of

our dear husband and father in your journal for February. It is true my husband was loyal to his profession, and when he was no longer in business he found pleasure in his veterinary literature. The REVIEW, one of his favorite periodicals, he read from Vol. I, No. 1, page 1, until his eyesight failed him, and then he would have one of his family read it to him until about a year ago, when his intellect suffered under the strain of failing health. Fortunately, he was able to enjoy short walks and drives until within three weeks of his final passing away.

Again thanking you, I remain,

Respectfully yours,

MRS. LOUISE MEYER.

COMMENCEMENT EXERCISES.

KANSAS CITY VETERINARY COLLEGE.

The white banquet room at the Midland Hotel, Kansas City, on the evening of March 15 was the scene of the eighth annual commencement and banquet of the Kansas City Veterinary College. About forty covers were laid and the evening was one of pleasure and entertainment for those present. The guests entered the banquet room shortly before 9 o'clock and it was several hours later before adjournment was taken.

Dr. O. W. Krueger, one of the instructors in the college, acted as toastmaster, and first introduced Dr. S. Stewart, dean of the faculty, who delivered the formal "faculty address." The presentation of diplomas to the graduates followed, the presentation being made by Dr. C. J. Sihler, President of the college. The class response upon the part of the graduates was by one of their members, Dr. Charles E. Steel.

Following these formalities, came the more social part of the programme. Dr. Tait S. Butler, formerly of the State Agricultural College of Mississippi, spoke upon "The Veterinarian as a Citizen," holding up the profession to a high place among the vocations of men. He was followed by Joseph W. Parker, of next year's class, whose topic was "Midway in a Veterinary Course."

Then came the chief of police of Kansas City, Kas., R. J. McFarland, who handled the subject, "A Layman's Conception of a Veterinarian." "The Veterinary Student" was counseled and advised by Dr. A. L. Hunt, one of the college instructors. "Is Conscientious Veterinary Service Appreciated?" was answered in the affirmative by Dr. R. C. Moore, one of the Vice-

Presidents of the college, and another Vice-President, Dr. I. J. Wolf, closed the programme with the toast, "The K. C. V. C."

This is the first year in which a class has been graduated which has taken the full three years' course to which the standard of the college has advanced. Being the transition class, it was small, but next year's class has about reached the number attending formerly, when the course was but two years. There were four graduates: Nelson V. Boyce, M. D., Henry Graham Patterson, Charles Edgar Steel, Harry Chase Simpson. Large numbers of the graduates of this school have been taken into the service of the government as inspectors and enjoy lucrative positions.

SOCIETY MEETINGS.

IOWA STATE VETERINARY MEDICAL ASSOCIATION.

(Continued from page 881, Volume XXII.)

The members gathered at Dr. Talbot's office, Wednesday, Jan. 11, and spent the forenoon witnessing the clinical part of the programme. This was a new feature in our meetings and was much enjoyed by all present.

The cases operated on and the operators were as given below: Cryptorchid (single), Dr. C. E. Stewart, Chariton.

Coccic Curvature, Dr. H. Shipley, Sheldon.

Spavin (ligamentous operation), Dr. W. B. Niles, Ames.

Stringhalt (division of lateral extensor of the phalanx), Dr. J. E. Brown, Oskaloosa.

Hernia, ventral (radical operation), Dr. S. Whitbeck, Decorah.

Quittor, Dr. S. H. Johnston, Carroll.

Two or three other cases that were to have been operated upon failed to arrive in time.

The operators all acquitted themselves in fine style. The members lost no opportunity to discuss methods of operating among themselves, and a most profitable session was thus spent.

The members reassembled at 1.30 P. M. at the room, and the meeting was called to order by President Johnston.

Dr. S. H. Kingery was called upon, and read a paper, the title of which was "Interesting Notes from Cases in Practice," upon which there was considerable discussion.

Drs. Stewart and Brown each reported cases in which corn cobs had become wedged in the upper molars, so that the animals could not eat.

Dr. Whitbeck reported being called to examine a case that "would not eat." On investigation he found the halter so small that the horse could not get his mouth open.

Dr. Stewart treats choking by pumping warm water into the œsophagus.

Mr. Yeoman, of the *Spirit of the West*, was present, and spoke of having a mare who sustained a rupture of the vagina while foaling. Under treatment made a perfect recovery. Would it be advisable to breed again?

Drs. Johnston, Shipley, Stewart, Stevens and others spoke on the subject, and it was generally admitted that such cases are generally susceptible of successful treatment, and that such cases might be rebred with impunity after complete recovery had taken place.

Dr. D. H. Miller, of Harlan, Ia., was then introduced and read a paper on "Surgical Interference with Actinomycotic Growths."

Dr. Parslow thinks many of the cases in which abscesses form around the throat are cattle distemper, and not actinomycosis.

Dr. Brown has had good results from the injection of the hard lumps that form with tincture of iodine, using a strong hypodermic syringe to make the injection.

Drs. Stewart, Miller, Titus and others spoke on the subject.

On motion by Dr. Kingery, being duly seconded and carried, the election of officers was then taken up, the result being the election of Dr. H. Shipley, Sheldon, President; Dr. H. E. Talbot, Des Moines, First Vice-President; Dr. P. O. Koto, Forest City, Second Vice-President; Dr. Jno. E. Brown, Oskaloosa, Secretary and Treasurer. Board of Censors—Dr. Whitbeck, Decorah; Dr. S. K. Hazlet, Oelwein; Dr. H. L. Stewart, Oakley.

Dr. W. H. Austin, of Newton, then read a paper on "Diseases of the Udder and Teats of Cows."

Some of the members present thought the enlargements in the milk ducts due to tubercular deposits, and also the cause in many cases of stringy and bloody milk.

Dr. Johnston has seen a number of such cases and made tuberculin tests on them, and has failed to get a reaction in any case. For such cases he gives Fowler's solution and potas. nitrate for eight days, then skips a few days and takes up the treatment again. When abscesses form in the udder he extirpates the section.

Dr. Parslow thinks some of these enlargements in the teats are pclypi.

Dr. S. Whitbeck being called to read his paper on "Nitro-glycerine; Its Action and Uses," stated that he had not completed his experiments with the drug, and promised to produce a paper on the subject on some future occasion.

Dr. G. A. Scott, of Independence, Ia., who was on the programme for a paper on the subject of "Filaria Oculi Equi," was unavoidably absent, but had forwarded his paper, which was read by the Secretary. Discussion followed regarding eye operations—puncturing the cornea for treatment of ophthalmia specific, etc.

Dr. Miller says there is little danger, and frequently punctures the coats of the eye in treating this form of ophthalmia with good results, if performed in the early stages. If there have been several attacks, the operation is useless.

Dr. Peters has operated with complete success. The cornea is tough, and it takes a pretty sharp knife to go through.

Dr. R. R. Hammond, of Le Mars, Ia., then read a paper on "Amputation of Uterus in Cows."

Discussions followed regarding similar cases, treatment, trusses, etc., Drs. Drinkwater, Austin, Stewart, Brown and others taking part.

Dr. Peters, of Lincoln, Neb., chairman of committee on organization of a Trans-Mississippi Veterinary Association, reported correspondence on the subject. It seemed to be the opinion that such an organization could not be maintained without detracting from the interest and attendance of the American and State associations.

Talks were made by quite a number of the members, and the kindly feeling existing between the Nebraska and Iowa associations frequently referred to, and all seemed to favor the holding of joint meetings on certain occasions.

Dr. Shipley made a motion, which was seconded by Dr. Austin, to receive the report and continue the committee to arrange for a joint meeting of the associations of Nebraska and Iowa at some future time. Dr. Brown moved to amend by adding "and give the committee power to call a joint meeting of the two associations when in their opinion an opportune time has arrived." The amendment was accepted and the motion as amended was voted and passed.

At the request of Dr. Peters, the secretary of the Iowa association (Dr. Brown) was added to the committee.

The association extended a vote of thanks to Dr. Talbot for the interest he had shown and the efforts he had made for the success of the clinical session.

Dr. Whitbeck, as Chairman of Committee on Resolutions, reported the following :

WHEREAS, Questions of very great importance often arise at a time when the voice of this association cannot be heard in convention assembled ; therefore be it

Resolved, That the President is hereby instructed to appoint a committee of three in addition to the President and Secretary who shall be *ex-officio* members, this committee to be known as the Judiciary Committee, and shall have jurisdiction in all matters concerning this association except at such times as the society may be in session.

WHEREAS, The Trustees of the Iowa Agricultural College have increased the work of the professors in the Veterinary Department to the extent of requiring the teaching of the subjects of pathology, therapeutics, comparative anatomy, surgery (operative and general), practice of veterinary medicine, obstetrics, meat and milk inspection, veterinary materia medica, examination for soundness, in addition to other veterinary work, laboratory and otherwise, of a well equipped veterinary college, and

WHEREAS, In addition to this they not only propose to continue, but increase the experimental work of the station ; therefore be it

Resolved, That it is the sense of the Iowa State Veterinary Medical Association that this amount of work is inconsistent with the quality of service that should be required and if it be necessary to require this work of two men, then only such men as are fitted by years of training with the practical and theoretical phases of veterinary science should be employed. And be it further

Resolved, That until so equipped, it cannot continue in good standing with this association ; and be it still further

Resolved, That we deplore the action taken by the Trustees of the State Agricultural College in disposing of the services of one of the ablest men in the West in experimental and scientific veterinary medicine.

By vote of the association, both resolutions were unanimously adopted.

Dr. Whitbeck moved the appointment by the chair of a committee of three to supply our national legislators with suitable literature bearing on army legislation and that our members be asked to use their influence with their congressmen. Seconded and carried.

On motion of Dr. Gibson, Dr. A. T. Peters was added to this committee.

Dr. Peters was given a vote of thanks for coming and for the interest he has shown in our association.

A vote of thanks was also extended to the management of the Savery House for the room and for other courtesies during our session.

Moved by Dr. Whitbeck that a committee of three be appointed on publication of reports, and that the same be published if possible. This was seconded and carried.

President Shipley then announced the following committees:

Army Legislation.—Drs. P. O. Koto, Forest City; S. K. Haylet, Oelwein; A. S. Brodie, Cedar Falls; A. T. Peters, Lincoln, Neb.

Judicial Committee.—President H. Shipley and Secretary J. E. Brown, *ex-officio*; Drs. J. I. Gibson, Denison; C. E. Stewart, Chariton; J. G. Parslow, Shenandoah.

Sanitation Committee.—Drs. W. B. Niles, Ames; J. I. Gibson, Denison; S. T. Miller, Shelby.

Disease and Treatment.—Drs. H. E. Talbot, Des Moines; S. H. Kingery, Creston; R. R. Hammond, Le Mars.

Speakers for Farmers Institutes.—Dr. W. B. Niles, Ames.

There being no further business, the meeting adjourned to meet in Des Moines next fall or winter, at the call of the President and Secretary.

JNO. E. BROWN, *Secretary*.

OHIO STATE VETERINARY MEDICAL ASSOCIATION convened for its sixteenth annual session in the parlors of the Neil House, Columbus, Ohio, Jan. 11, 1899.

Meeting was called to order by President Dr. Walter Shaw, who delivered his opening address as soon as calling the association to order as follows: "It is a wise, at least time-honored custom for those of us who preside over the deliberations in the sessions of associations of this character, to deliver an address in keeping with the spirit of our profession. We have assembled here with a definite aim and specific purpose, viz.: to formulate a policy which will best promote the interests of veterinary science, and result in doing the greatest good to the greatest number.

"On this occasion, it is my intention to direct your minds to some of the practical and important questions connected with our vocation—questions which agitate the public mind, and which we must deliberately consider and solve. As we look back over the pages of history of veterinary science, surgery and skill, we are astounded at our tremendous progress. With the onward march of civilization we have kept pace, and our profession is recognized as one of the potent factors which has made our country what it is in commercial relations.

"We are members of a profession, which, instead of pointing the finger of uncertainty, the world regards as honorable

and invaluable, and veterinary science to-day stands on its own merits, and by intrinsic worth has pushed its way to public and universal recognition. No particular medical mixture is any longer regarded as the panacea for all the ailments to which animal life is heir; neither is any one symptom considered the infallible sign of a certain disease. The competent veterinarian meets one of the urgent demands of national and international life—the man who is well versed in all the affairs which go to make the veterinary profession a necessity, who is a skillful surgeon, and who can make an accurate diagnosis, especially of those contagious diseases which affect both man and beast.

“That this is true, is evinced by the fact that the United States to-day employs a large number of veterinary surgeons to superintend and carry on its scientific and experimental work. Surgery has been completely changed and the veterinarians of ability who are employed at the various experimental stations, are disentangling medical knots, solving questions which have long perplexed the veterinary world and bringing light on many things which were formerly considered mysterious. It is the efficiency in our ranks which has revolutionized the relation of our profession to other professions, and has put us to the very front. In every department of our national life we hear the call for thoroughly disciplined and competent men, and our vocation is by no means an exception. The requirements of our veterinary colleges are indicative of a bright future for us. Their corps of instructors specify a curriculum of a high standard, and arrange a graded course which requires three or more years of diligent application on the part of the student. Graduation requires a thorough knowledge of anatomy, general pathology, morbid anatomy, physiology, chemistry, bacteriology, entozoa, hygiene, medicine and surgery. Comparative medicine, care and management of stock, meat, dairy and milk inspection, and all other branches pertaining to the profession are ably taught.

“The necessity and advantage of such a rigid course of study will be readily seen, when we remember how much depends on the judgment and competency of veterinarians who examine cattle, hogs and sheep that are shipped to Europe, from Omaha, Chicago, Buffalo, New York and other points. The demand for our stock meat and dairy products in the foreign market, is regulated largely by the healthy condition of our herds and their inspection at shipping points and abattoirs and the microscopic examination of the meat, to insure against microbes which would be detrimental to health. In this country where so much

milk and meat are consumed for human food it is absolutely necessary that they should receive the most critical inspection by the most competent men.

“It is advisable that our large cities should establish public abattoirs where all stock slaughtered for consumption would be inspected before and after slaughter. These inspectors should be held at least partially responsible for the public health, but no man can discharge the duties incumbent on his appointment, unless he has had a special training, and is thoroughly acquainted with the symptoms, pathology and post-mortem appearances of all diseases affecting the lower animals. He must have knowledge of micro-organisms and be familiar with the decomposing changes of all meat and milk used for human food.

“Again, the pure supply of milk depends on the healthy condition of the cow, which in turn, must pass the tuberculin test, and the inspection of a competent veterinarian who is able to pronounce a correct verdict as to her physical and sanitary condition, and the quality of food and water she eats and drinks.

“The necessity of the utmost care and every precaution is only realized when we remember that one diseased cow in a herd, will contaminate all the milk. This fact demands the ability on the part of the inspector to judge as to the health of the animal before slaughter. I call your attention to another reason to justify my claim that the veterinarian should be a man educated, thoroughly equipped and well versed in the science of his profession. Ohio's live stock industry is greater than most people realize. It probably ranks first. We are not far from the live stock centres and interest of this whole country, and that our domestic animals are appreciated, is shown by the fact that they find their way, through the channels of commerce, to all sections of this country and, indeed, all countries. We are proud of our natural resources—mineral and timber, of our manufacturing products, yet agriculture surpasses any other industry because live stock is the corner stone. And this industry, above all others, is worthy and capable of all possible improvement; it is here that we find such splendid opportunities for the veterinary profession. When we call to mind the fact that finance and health and the accuracy of the inspection at abattoirs, quarantines and shipping points, depend on the profession of which we are members, we are forced to the conclusion that veterinary science is of grave importance, and that it behooves the consumer, the producer and those in authority to encourage it by every possible means.

"The enactment of laws which will discriminate between quackery and science and between the incompetent man and the man of training and ability, is the only way to secure justice for the taxpayer and encouragement for veterinarians who are spending their time and energies to promote the interests of their profession.

"At the same time, it is true that every profession must solve its own problems and direct its own course, consequently, all the young men of our calling should join some association of this character, and all should be induced to attend these sessions regularly. From a scientific standpoint, we occupy a position which is equal to any other profession, and our opportunities in this country were never greater."

Roll-call showed the following gentlemen to be present; F. E. Anderson, Findley; J. H. Blattenburg, Lima; Geo. W. Butler, Circleville; L. W. Carl, Columbus; J. D. Fair, Berlin; F. L. Faust, Bluffton; W. H. Gribble, Elyria; T. B. Hillock, Columbus; S. H. Kent, Cadiz; W. A. Labron, Xenia; C. E. Leist, Columbus; S. D. Myers, Wilmington; H. J. Rowe, Sandusky; Walter Shaw, Dayton; E. H. Shepard, Cleveland; W. J. Torrence, Cleveland; D. S. White, Columbus; E. W. Emery, Greenfield; Neil B. Jones, Washington C. H.; R. C. Hill, West Alexandra; W. E. Clemons, Granville; C. B. Frederick, Columbus; and Wm. Eddy, C. J. Morrow, F. Griffin, H. J. Hammond, A. B. Detchon, O. V. Brumley, from the Ohio State University, Veterinary Department.

The next order of business was the nomination and election of officers, which resulted as follows: President, Walter Shaw, V. S.; First Vice-President, F. E. Anderson; Second Vice-President, W. J. Torrence; Third Vice-President, W. A. Labron; Secretary, W. H. Gribble; Treasurer, T. B. Hillock.

New members proposed were: R. C. Hill, West Alexandra, O., Ontario, 1895; F. L. Faust, Bluffton, O., Ontario, 1894; C. B. Frederick, Columbus, O., Ontario, 1893.

There being no objections to their admission, the rules were suspended and each in turn elected by acclamation and each on being introduced to the association made a few complimentary remarks.

Dr. S. D. Myers read the report of an interesting case entitled, "Was it a Vegetable Toxicum?" as follows:

The cases to which I wish to refer appeared in several of the counties in the southern part of the State, and, I am informed, extended into the State of Indiana. The disease was

in the form of an epizootic among the cattle, and especially milk cows. Its special lesions consisted of vesicæ, which affected the mucous membrane of the mouth, and, more especially, the dental pad. The skin around the coronet and mammary gland, were also special seats of the disorder. My attention was first called on September 2d, 1898, by a Mr. J. The history was, that he had a large short-horn cow, that seemed stiff and would not eat. I went to his place and found the cow, as described, with a calf a few weeks old at her side. The following symptoms were observed: Animal was very stiff, when forced to move, arched back, thus all four feet were brought together under the body. Heat and tenderness around the coronet; bowels constipated, urine scanty, milk diminished in quantity; temperature 103; circulation not much disturbed. Animal not taking any food or water; looked very hollow. She would occasionally grind her teeth. Saliva was hanging from her mouth; there was a peculiar smacking of the lips; the muzzle was dry; slight discharge from nose. The breath was foetid. The mouth was sore, containing ulcerous patches, which were irregular in size and shape. The dental pad was one dirty brown ulcer, tinged with yellow towards the centre. This ulcer was traversed by fissures. The other ulcers were on the lower jaw, behind the incisor teeth. Closer observation revealed small vesicæ, or blebs, on the inside of the cheeks and lips. My diagnosis was a form of aphthæ. I gave croton oil, 30 drops; fluid extract ginger, 2 drachms; linseed oil, 4 ounces; at one dose. I prescribed fluid extract nux vomicæ, 1 ounce, aquæ to make 8 ounces. Tablespoonful to be given morning and evening. I also left an aqueous solution of tannic acid, carbolic acid and glycerine, to be applied to the sores in the mouth three times a day.

It was found that, by placing the feed well back on the tongue, she could eat. So she was fed in this way. Water was given with a drenching bottle. After a few days the case was marked by a gradual disappearance of acute symptoms, an increase in the quantity of milk, which had been reduced to almost nothing; obliteration of the raw surfaces, by a development of new epithelium, and a gradual cessation of lameness, which was the last symptom to disappear. This, the first case, has been described in detail, as it is practically what was observed in the other cases, which were about seventy in number, excepting a few complications, which I will mention. In two instances the cows aborted. In three or four cases, vesicles

formed on the teats, which eventually broke and became confluent, leaving large dark brown scabs. The teats were very sore; so it was impossible to milk the cow without roping her. In two or three, vesicles formed around the coronet, and especially near the cleft. These also ruptured, leaving a yellow or brown material, which would readily pulverize when dry.

The treatment of all the cases was practically the same. I had no fatalities, but the disease caused a great loss to the owners on account of the milk supply being cut off.

I may mention that I noticed nothing in connection with the pasture that might produce the trouble. I had three cases in calves that were running with their mothers, and one case in a cow that was stall fed and running in a small lot for exercise. I may add, in conclusion, if this trouble has been caused by some plant or weed and it could be discovered, it would be a true homœopathic remedy for contagious apthæ.

Drs. Labron and Butler had had similar cases. A long discussion followed, but no definite action was reached as to cause, etc.

Dr. W. H. Gribble reported cases of lead poisoning.

Dr. F. E. Anderson reported a very peculiar case, but not being in writing the Secretary did not get the facts.

Meeting now adjourned to meet at 8.30 A. M. on the 12th.

Jan. 12.—Meeting called to order by Dr. Shaw.

Dr. W. J. Torrence read a paper on "Rambling Thoughts in Veterinary Practice." This paper was rambling, but nevertheless full of sound sense and facts, but the doctor would not give us the manuscript.

Dr. Geo. Butler criticised the paper, thinking the writer looked on the dark side of things; but then we have our pessimists and our optimists even in a veterinary association; and as one may be happy when he is miserable and the other miserable when he is happy, the difference in opinion does not prove anything.

Interesting cases were reported by nearly all the members present.

Prof. David S. White rendered the report of the Committee on Veterinary Progress, as follows:

"Since the panic of 1893, when nearly all commercial industries were paralyzed, our profession, like many others, received some staggering blows. Perhaps we felt the jar most when inventive genius harnessed electricity, compressed air and

other gases, and made them turn the wheels of vehicles upon tracks. This caused, almost at one time, thousands of horses, used in the transportation of the masses to and from their daily toil, to be thrown into disuse, and as a result a tremendous falling off in price in this once important factor in internal commerce.

“Our veterinary schools had trained us to consider the horse to be the basis of all our veterinary study. At least, the aim of most of our institutions of veterinary learning seems to have had in mind only the training of the equine physician, almost, in some cases, to the exclusion of the other six kinds of domestic animals. In fact, veterinarians were frequently met who scoffed at the very thoughts of treating dogs or swine, and even the ox, to use their own expression, was an animal for which one ‘good physic’ was the only drug their *materia medica* seemed to suggest as necessary to cure its every ill. How often have we heard stock owners say of the nearest veterinary surgeon: He’s a good ‘horse doctor,’ but don’t know much about cattle. Might not our sources of revenue be more numerous if some of us ‘posted up’ a little better on animal diseases other than the equine?

“In these stringent times, which are happily and surely passing over and away from us, little incentive could have been felt by the bulk of our profession to show great progress along the lines of their calling. Our advancement, then, has been along purely scientific lines, and the work of careful, painstaking members of the fraternity whom we have too often somewhat scornfully sought to classify as ‘laboratory recluses,’ ‘kid-gloved hoss doctors,’ and the like. A review of what these representatives of our profession have done for the advancement of our profession, should convince the most sceptical that they have kept apace of the times.

“Unfortunately, not much of this scientific advancement, even, has been noted in our own State. Most of it has come to us from neighboring commonwealths, and the major part from Europe, where with their national schools, well trained and long experienced teaching forces, splendid equipment, long course of instruction and well directed veterinary organizations they lead us by a decade.

“All the advancement we have made, the progress we have experienced, of late, in our State, has been: First, the practical application of suggestions, the result of scientific investigations, which our reading colleagues deduce from current literature;

secondly, there has been a noted tendency to have enacted better laws, both national and State, to control infectious and contagious diseases, and to regulate the practice of veterinary medicine. These, however, have been brought about more by the personal efforts of individual members than of the veterinary body whole.

“Though we have a much more difficult berth in life than our co-laborers in the allied profession, medicine, the average veterinarian of to-day, notwithstanding, compares *very* favorably with his brethren in human medicine. Perhaps the difficulties which he must overcome in the pursuance of his daily duties make him more alert, observing and skilled than he might otherwise be if subjective symptoms and psychical drugs did not fail him; but the fact remains that the progressive veterinary surgeon who has kept abreast with the times need no longer feel himself subordinate in general intellectuality or technical knowledge to the peerage of any of the more ‘learned callings.’ As a whole we are not apt to be ‘hide bound’ in our prejudices, and usually are wont to mould to practical advantage scientific ‘dogmas’ at which our more speculative M. D.’s would fain scoff.

“One of the most progressive steps the veterinary profession has ever taken was the alacrity with which we appreciated the revolutionizing of medicine by the latter day investigating scholars of modern physic. As an example: Nothing has ever done as much for the veterinary art as the ready adoption by our brethren of the science of bacteriology. Then to the world was proven beyond all reasonable doubt the close and inseparable relationship between animal and human medicine. It proved to thinking men that between the two a scientific difference does not exist. What difference there is we have brought about ourselves—it is an artificial one, a social one. To right this evil, to wipe out this artificial difference, we should as a body of professional gentlemen comport ourselves toward the public and our fellow brethren, our colleagues, as *men* in every sense that that term implies, we should be *above* our profession rather than beneath it. A little practical application of the Golden Rule ‘do unto others as you would have others do unto you,’ would not come amiss with many of us. Speak well of the members of our profession to all, *organize* and *stick together*. In union lies our strength.

“Instead of the mere handful of veterinarians who come to our meetings, every member of our honorable profession within

the borders of our State, who has secured a diploma from a reputable institution of veterinary learning, should join us, and help turn our, as yet, nucleus into an organization of influential power and strength. A well organized veterinary association in Ohio would do more to help our status in the State than any other factor.

"There is a great field of work before us, and the well directed, vigorous efforts of such a mighty union would bring about for us the blessings which are here appended :

" 1. A State veterinarian.

" 2. A division of our State into districts, and to each district the appointment of a district veterinarian.

" 3. The appointment of veterinarians upon municipal health boards.

" 4. To all city police and fire departments a veterinarian in care of live stock belonging thereto.

" 5. Municipal, central slaughter-houses with veterinary inspectors.

" 6. A veterinary dairy inspector.

" 7. A strong union would make our fees more uniform.

" 8. A veterinarian in charge of a division of our State agricultural experiment station work.

" 9. The influence of such a union would be felt in influencing Congress to give to our army veterinarians shoulder straps ; the rights, tenure of office and the care for their widows and orphans which such would entail.

"None of these suggestions are experimental or utopian. They are the conditions to which the public must gradually become educated to appreciate, and are now—to-day—in vogue in every other civilized country on the globe but our own.

"Let our efforts be directed toward bringing them about."

Dr. F. E. Anderson read a circular letter from Dr. Salmon in reference to the army reorganization law as it affected the standing of the veterinarians of the army. Motion was made, duly supported and carried, to appoint a committee to draft resolutions on the subject in support of the amended bill and the Secretary instructed to send each member in Congress from Ohio a copy of these resolutions. The committee, Drs. Hillock and White, offered the following :

WHEREAS, The Ohio State Veterinary Medical Association fully realizes that the veterinary corps of the United States army as at present constituted cannot be effective ; its improper organization entailing upon the country a loss of millions of dollars as well as lowering the dignity of a noble profession, and

WHEREAS, A bill has been introduced into Congress to reorganize the army, and in which it fails to recognize the importance of a well organized veterinary corps, such as is found in every other army in the civilized world but our own.

WHEREAS, A committee of the American Veterinary Medical Association are making persistent efforts, endeavoring to have this bill so amended that to every veterinary surgeon of our army shall be accorded the rank, rights, tenure of office, etc., of a commissioned officer (mounted). Therefore, be it

Resolved, That this association in convention assembled take full cognizance of the efforts of this committee by respectfully requesting each and every Senator and Congressman of this State to give the proposed amendment his earnest cordial support, and

Resolved, That the Secretary of this association be instructed to furnish each of our Senators and Congressmen with a copy of these resolutions and that the same be spread upon the minutes of this meeting.

Being ready for adjournment, we next proceeded to select a place for our semi-annual session. Cities named were Dayton, Lima, Washington C. H., and Detroit, Mich. It was finally decided by motion that our semi-annual session be held in Detroit if the Michigan Association brought about a joint session, if not the latter fact, that we then meet in Lima during July.

The session now adjourned, every one present having been well repaid for the time and expense of his coming, both from a professional and social point of view and with our small annual dues of \$1 its seems strange that every graduate veterinarian in the State is not a member ; but we find, that those most clamorous for legislation, and who criticise the association's inactivity, as they express it, are those who do not contribute one cent towards expenses, and who lie back with folded arms waiting for some one else to do the work.

WM. H. GRIBBLE, D. V. S., *Secretary*.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The March meeting was held in connection with the annual meeting of the Pennsylvania State Veterinary Medical Association, March 8, 1898, under what was undoubtedly the most pleasant auspices, with the largest attendance that has ever graced a meeting of this association.

Its large attendance was due to the fact of its being called to order by President Leonard Pearson, who was also host, at the largest banquet table ever surrounded by veterinarians, there being over 120 there assembled to testify to the popularity of their host, and to emphasize the fact that they appreciated a gastronomic treat far more than a literary one. Secretary

Rhoads promptly moved to adjourn, which was carried. Thus began and ended the briefest, best attended, and undoubtedly the most popular meeting of the Keystone Veterinary Medical Association.

The April meeting was called to order by President Dr. Leonard Pearson with the following members of the profession present: Drs. Otto Von Lang, Grubb, James M. Mecray, S. J. J. Harger, H. D. Hackler, J. C. Morris, McCoy, Stauffer, Vasey, John Rayner, Felton, W. H. Hoskins, Leonard Pearson, W. H. Ridge, Chas. Lintz, Chas. T. Goentner, and J. W. Adams, H. P. Eves, James Thomas Rayner, C. J. Marshall and J. D. Houldsworth. Secretary Rhoads being absent, on account of sickness, the reading of the minutes was dispensed with, and the Secretary's duties were performed by Dr. Ridge.

After the general routine of business the March meeting of the Keystone and State Associations and the banquet given by Dr. Leonard Pearson were discussed, after which Dr. Pearson gave a talk on the veterinarians of foreign armies, giving their rank and standing from the time of the Roman army to the present. Dr. James Rayner then read a report of a case of paralysis of the bowels. After the discussion on this paper the meeting adjourned to meet May 10, 1898.

The May meeting was called to order by President Leonard Pearson, at 8 P. M., May 10, 1898, with the following members of the profession present: J. M. Mecray, S. J. J. Harger, H. D. Hackler, Otto Von Lang, Vasey, John Rayner, H. B. Felton, M. W. Drake, J. C. Morris, Charles T. Goentner, W. L. Hart, W. H. Hoskins, Charles Lintz, L. Pearson, W. L. Rhoads, Thomas B. Rayner, Wm. Ridge, C. J. Marshall, John W. Adams, A. N. Lushington and J. D. Houldsworth.

After the general routine of business Dr. W. H. Hoskins gave a most interesting talk on "Emphysema," covering his subject so well that President Pearson could scarcely get a word from any of the members or visitors on the subject, yet the discussion brought out diverse opinions as to lesions and treatment.

The subject of the Army veterinarian again came up for discussion, and Dr. Hoskins moved that the officers of the K. V. M. A. confer with officers of the State Association, as to the best method of raising \$200 from the profession throughout the State for the furtherance of army legislation. The

President appointed Drs. Hoskins and Rhoads as a committee of two to take this matter in charge. They made appeal to those present and raised \$30.

Dr. Rhoads moved that the President appoint a committee of three to draft resolutions directed to Dr. Salmon, pledging the support, morally and financially, of the K. V. M. A. in this work. The application for membership of Dr. J. M. Meany, of Maple Shade, N. J., having been favorably reported by the Board of Censors, was now voted upon and he was unanimously elected to active membership.

The association now adjourned to meet June 14, at which time Dr. Harger will open discussion on "Quittor."

The June meeting was called to order by the President, Dr. Leonard Pearson, at 8 P. M., on the 14th, with the following members of the profession present: Drs. Charles Goentner, W. H. Hoskins, W. G. Shaw, T. B. Rayner, S. J. J. Harger, Charles Lintz, J. W. Adams, Nicholson, J. M. Mecray, McGary, H. D. Hackler, Land, Cunningham, Spaeth, P. K. Jones, Spindler, M. W. Drake, W. Ridge and W. L. Rhoads. Dr. John W. Adams read a paper on "Operative Treatment for Cribbing," and stood the test of all sorts of questions from all and valuable suggestions. Dr. S. J. J. Harger opened the discussion on "Quittor." This subject was well entered into, thoroughly sifted, and discussed. Dr. W. Horace Hoskins and others thoroughly aired the recognition the army veterinarian should receive, but does not get.

The meeting adjourned to meet September 16th, as this date would not conflict with the trip of those members who attend the Omaha meeting, at which time Dr. Leonard Pearson will give a talk on veterinary notes from Europe.

The September meeting was held on the 16th, having been postponed from the 13th, that our members who were at Omaha might have time to return and tell of the sights and pleasures, but, sad to relate, their chaperon lost his bearings going out and traveled hundreds of miles around; those who arrived on time became so engrossed with their initiation into one of the large Western lodges and their progress in the art of camel-riding, that the meeting was as yet a week too soon for them.

Our President being absent, Dr. J. T. McAnulty was called to the chair, and the meeting convened with the following members of the profession present: Drs. T. B. Rayner, James

B. Rayner, John B. Rayner, Otto Von Lang, J. D. Houldsworth, S. J. Nicholson, H. B. Felton, J. T. McAnulty, John J. Repp, J. M. Mecray and W. L. Rhoads.

After the general routine of business, the Secretary asked for information regarding the start and early history of the K. V. M. A., for use in the by-laws, etc., of the association, about to be printed. Dr. James B. Rayner reported a case. Dr. J. T. McAnulty reported a case of lameness, which had been nerved and fired and seemed to be doing well. Dr. Houldsworth also reported case of lameness. Dr. Mecray reported case of staggers; post-mortem revealed red tumor size of pea, attached to dura mater and pressing upon brain. The diversity of reports and discussion thereon brought up points far from the original topic, yet all times adding new interest and making this one of the most pleasant meetings held for some time. Adjourned to meet October 11, 1898.

The annual meeting was called to order by President Dr. Leonard Pearson at 8 P.M., October 11, 1898, with the following members of the profession present: Drs. E. S. Muir, W. H. Hoskins, H. P. Eves, S. J. J. Harger, W. H. Ridge, C. J. Marshall, Chas. T. Goentner, E. M. Ranck, J. M. Mecray, W. H. Shaw, J. D. Houldsworth, J. W. Adams, Leonard Pearson, R. A. Hummel, and W. L. Rhoads, also Mr. R. A. Pearson. After the roll-call the reading of the minutes was dispensed with. Dr. John J. Repp was elected to active membership and introduced to those present. It was moved by Dr. Hoskins and carried that the incoming President appoint a Legislative Committee of five (5), with recommendations that they pay particular attention to any legislation regarding the practice of veterinary medicine in the State; also questions on meat and milk inspection. In response to the Secretary's appeal for information regarding the early history, etc., of the "K. V. M. A.," it was voted that the incoming President appoint a committee of three (3) original members to procure the original minute book, if possible; if not to make a report from memory of the origin, etc., of K. V. M. A., said report to be embodied in the reprint of Constitution, By-laws, etc. The President asked for a report from committee appointed at January meeting to ascertain truth of statements on milkmen's display card, saying dairies were under veterinary sanitary supervision. After their report they were instructed to give a written report at January meeting. The Treasurer being absent, no report was made.

The Secretary's report showed a balance of \$10.69 in his hands after the payment of all bills. Dr. Ridge was now called upon to read his paper on "Œsophagotomy." This paper was received with much interest and the discussion brought forth many means of treatment before performing the operation, among which veratrin and pilocarpine were prominent.

Dr. E. S. Muir now read a paper on "Hypodermic Cathartics," which was based upon a series of experiments made at the Veterinary Department of the University under his personal supervision. It was made not alone as a clinical illustration, but more for a further advancement in the art and science of the use of hypodermic cathartics. His paper finishes as follows: "We find on consulting the table that barium chloride acts quickly from one to nine (1 to 9) minutes, causes large quantities of fæces to be voided, does not cause pain, and the action ceases in from 1 to 3 hours. Physostigmine sulphate causes abdominal pain, is longer producing evacuations, its action lasts from 2 to 4 hours, causes expulsion of large quantities of fæces, mucus and flatus, while arecoline acts quickly, it causes more pain than either of the other salts; action lasts longer, from 3 to 5 hours; amount of fæces voided small and never very soft, but produces profuse flow of saliva, an involuntary dripping of urine." After considerable discussion on this valuable paper, the association took up the election of officers for the ensuing year, with the following results: President, Dr. Leonard Pearson; Vice-President, Dr. H. P. Eves; Treasurer, Dr. Charles T. Goentner; Secretary, Dr. W. L. Rhoads; Censors, Drs. W. H. Hoskins, J. W. Marshall, J. W. Adams, W. H. Ridge and Thomas B. Rayner. After election of officers, the association adjourned to meet November 8th. The application of Dr. John J. Repp for active membership having been favorably acted on by the Board of Censors was now voted upon and he was unanimously elected to membership.

The November meeting was called to order on the 8th, by President Dr. Leonard Pearson, with the following members of the profession present: Drs. H. P. Eves, C. Williams, S. J. J. Harger, J. D. Houldsworth, C. J. Marshall, E. M. Ranck, W. H. Hoskins, Leonard Pearson, E. H. Landis, W. G. Shaw, J. W. Adams, W. L. Rhoads, also Mr. R. A. Pearson. President Pearson announced his committees for the year as follows: Committee on Programme—Drs. W. L. Rhoads, J. J. Repp, and J. W. Adams; Committee on History—Drs. C. Goentner, W. H.

Hoskins and W. B. E. Miller; Committee on Legislation—Drs. W. H. Hoskins, F. S. Allen, W. S. Hooker, James B. Rayner, and W. H. Ridge; Investigation Committee (continued)—Drs. C. J. Marshall, J. D. Houldsworth, Charles Lintz.

After the general routine of business, Dr. E. H. Landis gave some interesting reminiscences of army life during the late war, showing the standing of the army veterinarian and the reason therefor. Their appointment is due invariably to political influence and after being appointed the graduate has no opportunities to prove that qualified men are superior to bricklayers or mule-drivers, as they have no facilities, no drugs nor medicines, and worse than no authority. He told to what a great extent nitrate of potassium was used and with what dire effect; also of the elaborate and far from efficient mallein test made. Glanders and distemper were diagnosed as the same to simplify treatment. He gave some examples of reports made to heads of departments. A vote of thanks was extended to Dr. Landis and it was moved and seconded that we as an association do all possible to improve this condition of affairs. Dr. Pearson now spoke on the standing of army veterinarians in foreign countries and the step promotion through which they came. He gave the French the credit of having the best mounted cavalry of the world. He then gave a talk on "Gems and Germs from Germany." He spoke of the great activity there in veterinary work, of the complete system under which they work free from political influence. He also spoke of our inadequate meat and milk inspection and cited the loss of 100,000 hogs in Cumberland County from hog cholera and of the losses to our local cattle feeders through inadequate means of stopping Texas fever. His talk was instructive and full of humor. The Investigation Committee now made a report, and Dr. Charles Williams gave a brief *résumé* of veterinary and sanitary inspection of milk in Philadelphia. Mr. R. A. Pearson spoke of laws and ordinances governing inspection of milk in different municipalities. The Board of Censors having favorably passed upon the application of Dr. W. G. Shaw for active membership, it was now voted upon by the association, and he was unanimously elected to membership. Meeting adjourned to meet December 13, 1898.

The December meeting was called to order by Dr. W. S. Kooker, President Dr. Leonard Pearson and Vice-President Eves being absent. Those who were there at roll-call or came in later were: Drs. Francis Bridge, H. P. Eves, C. Williams, James

M. Mecray, Otto Von Lang, J. J. Repp, W. G. Shaw, George Felton, John Rayner, James T. McAnulty, J. W. Adams, E. M. Rauck, S. J. J. Harger, Otto G. Noack, W. H. Ridge, W. L. Rhoads, H. D. Hackler, W. H. Hoskins, W. H. Super and C. J. Marshall. After the general routine of business, the subject for discussion ("Founder") was taken up by Dr. Charles Williams, who held that a horse must first have some systematic or constitutional disturbance, and founder was but a sequel to these, and not a primary trouble. He was followed by Dr. Bridge, and the discussion was entered into with zest by everyone, and the causes, conditions, cures, etc., were varied and well worth being considered. The causes were given as over driving, chilling by draft, water or feeding; others cited cases of mares running in field with foal and others after abortion and also after parturition. It was divided into two forms, chilling and rheumatoid. It was claimed to be often confounded with tenosynovitis and myositis. The treatment varied; there were advocates of purging, and those who were against it. Remedies were from large and repeated doses of nitrate of potassium, aconite, aloes, calomel, fleam, salol, pilocarpine, salicylic acid, acetaniled, and iodide of potassium. Some advocate hot water and others use ice-water only.

The question of horn growth was considered and the best methods of softening and growing hoofs. Dr. Hoskins spoke of an operation done by Dr. Lyford at the national meeting. Dr. Adams having spent some time with Dr. Lyford, fully explained the operation, but did not think it anything wonderful or new. The discussion was now closed, and Dr. Harger exhibited an interesting specimen of impaction of descending portion of large colon of Newfoundland dog, said impaction was one foot long by four inches through; the contents were pulpy and fibrous; the dog had suffered with constipation for two years, but had good appetite till within two days of his death. Dr. Ridge reported case of abdominal abscess in weanling colt. There was some discussion as to the best way to improve meat and milk inspection in Philadelphia; also the rank and standing of the Army veterinarian. It was moved and seconded that a press committee of three; also a committee of three to look after the heads of departments (official) be appointed for these and other matters which relate to appointments. Press Committee, Drs. Leonard Pearson, Hoskins and Rhoads. Official Committee, Drs. J. W. Adams, C. J. Marshall and F. Bridge. Meeting adjourned to meet January 10, 1899.

The January meeting was called to order by President Dr. Pearson on the 10th, at 8.30, with the following members of the profession present: Drs. S. J. J. Harger, Charles Williams, Wm. Ridge, W. G. Shaw, B. M. Underhill, H. D. Hackler, Leonard Pearson, M. W. Drake, E. M. Ranck, J. D. Houldsworth, C. J. Marshall, W. L. Rhoads, S. McClure, W. H. Hoskins. After the roll-call and reading of the minutes of the previous meeting, Dr. Hoskins, as chairman of the Committee on Legislation, made a report, urging all to make a concerted movement to assist in the gaining of rank for the army veterinarian. Further plans were discussed for raising from the profession in Pennsylvania the \$200 pledged by the Keystone to aid in this work. The annual meeting of the State Veterinary Medical Association was talked of and a committee of three (Drs. W. L. Rhoads, J. D. Houldsworth and W. G. Shaw) appointed to represent the K. V. M. A. in the entertainment of the State Association. Dr. J. J. Repp, having left the city, Dr. J. W. Marshall was appointed to act on the Programme Committee. Dr. S. J. J. Harger was introduced, and gave a very interesting talk on "Cribbing, its Causes and Cure." He spoke of numerous mechanical methods for preventing this vice and fully described the operative treatment for its alleviation or cure, viz., the resection of the eleventh pair of cranial nerves, or the resection of the sterno-hyoid and sterno-thyroid muscles. He reported four cases operated upon—first, resection of two muscles in front of neck; case improved but not cured; second, roan gelding, same operation, improved but not cured; third and fourth cases, resection of muscles and spinal accessory nerves; this has proved a cure in each case up to present time; while operation has not been done long, cannot say what the final result will be. A vote of thanks was extended Dr. Harger for his very able and instructive talk. Dr. Pearson reported three cases, which had been operated upon in Professor Diekerhoff's clinic of Berlin, by the resection of muscles only. He says the double operation is original with Dr. Harger. Dr. Pearson now reported a series of cases in southern portion of the State which caused the death of 150 to 250 cattle on 60 or 70 farms; they die in convulsions in from four to twelve hours after first noticed; the trouble led them to diagnose it as corn stalk disease, so far as known in this country; it is said to kill ten to twenty thousand in Kansas every year. Dr. Rhoads and Dr. Ridge each reported cases very similar to those reported by Dr. Pearson. Dr. Ridge continued his report of abdominal ab-

success in colt. Dr. Hoskins told why it was of interest to the individual taxpayer to have the army veterinarian a commissioned officer. Dr. Pearson appointed Drs. Hoskins, C. J. Marshall and J. D. Houldsworth a committee to draft resolutions of sympathy and condolence and forward the same to Dr. Thomas B. Rayner. Dr. Houldsworth spoke of the great good done by our State Veterinarian and moved that a committee of three be selected to act for the Keystone Veterinary Medical Association in any movement toward having him reappointed for another term. He then selected Drs. Hoskins, Marshall and Adams as that committee. It was then suggested that Dr. Houldsworth also consider himself one of the said committee. The meeting now adjourned to meet February 14, 1899.

The February meeting was not held as the profession, with the rest of humanity, was snow bound by the blizzard.

W. L. RHOADS, D. V. S., *Secretary*.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was called to order in the New York Academy of Medicine, March 1, 1899, at 8.30 P. M., President Robertson in the chair. The following members present at roll-call: Drs. Amling, Bretherton, Bell, J. S. Cattnach, Jr., Clayton, Delaney, Ellis, Gill, Grenside, Goubeaud, Hanson, Keller, O'Shea and Robertson. Among the visitors present were Prof. W. L. Williams, New York State College, Dr. Howe, of Ohio, and Dr. Dubois, of New York City.

The minutes of the previous meeting were read and approved.

Report of Board of Censors.—Dr. C. E. Clayton, chairman, reported that the Board held an application for membership from Cyrus H. Dubois, D. V. S., of 211 W. 76th St., graduate of American Veterinary College, class 1896, but as a quorum was not present, action upon it would have to be deferred until the next meeting. Report was accepted.

Papers.—Dr. Clayton then read a paper entitled "Median Neurectomy." * After listening to Dr. Clayton's paper, it was regularly moved and seconded that the By-laws be suspended and the visitors have the freedom of the floor in the discussion. Carried.

The discussion was opened by Dr. Bell introducing Prof.

* Published elsewhere in this issue.

Williams, of Ithaca, who indulged in a lengthy discussion of the operation described in Dr. Clayton's paper. Dr. Howe, of Ohio, was requested by the chair to engage in the discussion, but stated that he had never performed the operation or seen it performed, but gave his results from low plantar neurotomy, which he stated were most satisfactory and that he had performed it on great numbers of horses—giving it precedence over high plantar. While the discussion by the members was animated and interesting it could not become very general, as but few present had performed the operation. Moved and seconded that a vote or thanks be extended to Dr. Clayton for his most excellent essay. Carried.

Committee on Legislation.—Dr. O'Shea, Chairman, reported that two bills to amend the present State law and reopen the registration books to quacks, had already been passed in the Assembly and gone into the Senate, and a third one was still in the Assembly. He also called the attention of the association to Bill No. 650, entitled "An act in relation to the establishment of a State live stock sanitary commission, and to provide for the control and suppression of tuberculosis and other dangerous diseases of domestic animals,"* and stated that the committee desired to get the sense of the meeting, as to whether they approved or disapproved of the bill as a whole, or any feature in the bill. After free discussion, it was moved by Dr. Clayton that the association approve the bill, after amending that part of Section 1 that relates to appointments, so as to make all the appointments therein subject to civil service examination. Seconded; carried.

Moved and seconded that the meeting adjourn. Carried.

ROBERT W. ELLIS, D. V. S., *Secretary*.

VETERINARY MEDICAL SOCIETY UNIVERSITY OF PENNSYLVANIA.

Meeting was called to order December 9, 1898, at 8 P. M. Mr. Gelbert was appointed critic. The programme of the evening consisted of address by Prof. S. J. J. Harger, the subject being "Saline Transfusions," which was ably handled by Prof. Harger, he also demonstrating the method of injection. A vote of thanks was extended him.

The greater part of the meeting was consumed in transacting the business of the association.

Meeting adjourned at 10.20 P. M.

* This bill was printed in full in March REVIEW.

Meeting was called to order December 16, at 8.05 P. M. After transacting a few business matters the meeting adjourned to the University restaurant, where the annual banquet was held. Among those present were Drs. J. W. Adams, S. J. J. Harger, W. Horace Hoskins and Wm. G. Shaw. Owing to the absence of the Dean, Dr. Leonard Pearson, from town, he was unable to be present. We are happy to say that the banquet was a success and will go down in history as one of the enjoyable affairs of college life, as it carried out the old adage—"A little nonsense now and then is enjoyed by the wisest men."

Meeting was called to order January 15, 1899, at 8 P. M. This meeting was important from the fact that the officers for the second term were elected. The gentlemen honored on this occasion were Mr. Hoopes, '99, President; Mr. Miller, '99, Vice-President; Mr. Kerns, '99, Treasurer. Messrs. Jacobs, '99, Young, '00, Stehle, '00, Walters, '00, were elected to the Executive Committee.

Dr. Hoskins addressed the meeting, his subject being "Veterinary Legislation." His address was short but highly appreciated by all.

Meeting was called to order February 3 at 8.10 P. M. Mr. Taylor was appointed critic. The meeting was addressed by Dr. J. W. Harshberger, subject being "Aspects of Spanish Bull Fights and Cock Fights." This lecture was extremely interesting. He also demonstrated this talk by photos collected during one of his trips to Mexico. A vote of thanks was extended Dr. Harshberger.

Meeting adjourned at 9.30 P. M.

Meeting was called to order Feb. 17, at 8 P. M. Mr. Hughes was appointed critic. Literary programme of the evening consisted of a paper on "The Analysis of Milk," by Mr. Jacobs. This paper was highly appreciated by the members, as Mr. Jacobs made matters very plain.

Next in order was the debate, the subject being "*Resolved*, That the Vaccine Treatment for Anthrax Should Be Abolished." Affirmative—Messrs. Newcomer, '99; Horner, '00; Bassler, '01. Negative—Messrs. Taylor, '99; Phillips, '00; Carlisle, '01. The judges were Messrs. Miller, Young and Shore. They decided in favor of the affirmative. The society as a body decided in favor of the negative. The general discussion was very good.

Meeting adjourned at 9.30 P. M.

L. A. NOLAN, *Secretary*.

MONTREAL VETERINARY MEDICAL ASSOCIATION.

The regular meeting of the society was held January 26th in the Library of the college, Dr. Chas. McEachran presiding. Drs. Alloway, McCarry, Mullins and Sugden were also present.

Mr. Kayto reported some very interesting cases of the broncho-pneumonia form of distemper in dogs which had come under his care during the past summer. These had all been treated and made good recoveries.

After these had been discussed, the Chairman called upon Mr. Henderson for his paper on "The Qualified Veterinarian versus the Charlatan," which excited a very animated discussion, it finally being decided to bring the matter before the coming Alumni meeting next month, after which the meeting adjourned.

A regular meeting was held on February 9th, Dr. Baker presiding. Mr. Gellatly reported a very interesting case of flatulent colic which he had treated with good success. This was followed by an essay by Mr. McGregor on "Actinomycosis." These subjects excited a very interesting discussion, followed by an address by the Chairman, after which the meeting adjourned.

JAS. MCGREGOR, *Sec.-Treas.*

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

We regret that the crowded state of our pages necessitates the postponement of the publication of the proceedings of the late meeting of this progressive association. We have received from Secretary Heck a copy of all the papers read, together with a stenographic report of the discussions, and will begin their publication in the May issue. In a private letter Dr. Heck says: "For the past two years I have written you after each of our meetings that we had just held the best session in our history, and now I expect it is getting to be an old thing and you are tired of it; but I assure you, Doctor, I have told you the truth, and the last one was the very best we ever held. When you get together sixty or more veterinary men at one meeting it begins to assume the proportions of the U. S. V. M. A., and certainly but few societies in this country can boast of such attendance. We are alive! we are rustling! we are trying to improve ourselves, and by constant effort we think we are succeeding. In the discussion as handed you is the stenographic reports I think you will notice improvement in the discus-

sion as a whole. Our programme was issued two weeks before the meeting, which gave time for the members to post up on the topics for discussion; thus we avoided much 'soft stuff' from those who are always ready to talk but know nothing of real importance."

AMERICAN VETERINARY MEDICAL ASSOCIATION.

Secretary Stewart writes the REVIEW, that resident State Secretaries are actively working in the interest of the meeting to be held in New York City, and through their efforts a number of papers have been promised. Dr. C. C. McLean, of Meadville, Pa., will contribute a paper on "Dairying from a Pure Milk Standpoint," with a practical demonstration of milk testing. Dr. W. Horace Hoskins will present a paper on a practical subject, as will also Dr. John J. Repp, of Ames, Ia.

President Clement has made the following appointments as Resident State Secretaries: Colorado, Dr. Chas. Gresswell, Montclair, Denver; Wisconsin, Dr. R. H. Harrison, 206 Thirteenth St., Milwaukee; Kansas, Dr. W. H. Richards, Emporia; Maryland, Dr. E. C. Fox, 2823 Huntingdon St., Baltimore; Massachusetts, Dr. Benj. D. Pierce, 27 Sanford St., Springfield. The latter three to fill vacancies caused by resignations.

Several Tennessee veterinarians have already communicated their intention to attend the meeting in New York to Resident Secretary Plaskett.

NEWS AND ITEMS.

DR. W. W. JOHNSTON, B. A. I., South St. Joseph, Mo., is absent on sick leave.

DR. H. G. PATTERSON, recent graduate of Kansas City Veterinary College, has opened an office in St. Joseph, Mo.

DR. KING, of Cincinnati Veterinary College fame, has located in St. Joseph, Mo., for the practice of human medicine.

WE are pleased to learn from the publisher that Prof. Hanson's "Equine Pathology" is meeting with a satisfactory sale.

DR. R. A. RAMSAY, of Mexico, Mo., has been appointed a federal meat inspector and has reported for duty at So. Omaha, Neb.

DR. W. A. HECK, the efficient Secretary of the Missouri Valley V. M. Association, has been on the sick list as a result of vaccination.

DR. JOS. M. GOOD, of Chattanooga, Tenn., has recently been added to the force of the B. A. I. employees at South St. Joseph, Mo.

BISHOP, the celebrated veterinary dentist, who in recent years kept a hostelry on the Coney Island Boulevard, Brooklyn, N. Y., died in October.

DR. JOHN J. MOYNAHAN, of Holyoke, Mass., has been appointed by the mayor of that city inspector of animals and provisions at a salary of \$500 per year.

DR. MUNROE B. MILLER, of New York, has accepted appointment as meat inspector in the Bureau of Animal Industry and is stationed at Kansas City. Dr. Miller served in the commissary department of the army during the war with Spain.

HIGH PRAISE FROM HIGH SOURCE.—“The REVIEW is a noble exponent of the veterinary profession in this country, and should be a *vade mecum* to every American veterinarian.”—*Dr. W. J. Martin, President Illinois State V. M. Association, Kankakee, Ill.*

CANINE STATISTICS IN FRANCE.—According to the *Semaine Veterinaire* recent statistics made by official regulations show that there exists in France 2,960,000 dogs. Among them 800,000 are “chiens de luxe.” Compared to the population, it makes 7 dogs for each 100 inhabitants.

DR. W. H. GRIBBLE, of Elyria, Ohio, the efficient Secretary of the Ohio State Veterinary Medical Association, who for a year or so has owned and operated a steam laundry in the intervals of practice, has been so unfortunate as to be burned out in his commercial enterprise without a cent's insurance on the plant.

AN examination of veterinary surgeons was held in New York City on February 15th to secure an eligible list from which to select a number of practitioners for the consolidated street cleaning department, which will employ more than five hundred horses; for inspectors for the Health Department, and other positions. Twenty-eight took the examination.

PROF. W. L. WILLIAMS, of the New York State Veterinary College, paid a flying trip to Philadelphia and New York during the latter part of February, visiting the various veterinary colleges. On March 1st he was present at the meeting of the New York County Veterinary Medical Association, and entered heartily into the discussion of the paper on “Median Neurectomy.”

MICHIGAN VETERINARY BILL.—A letter from Dr. Herbert

F. Palmer, of Brooklyn, Mich., under date of March 14, says: "We expect our bill to protect the title of Veterinary Surgeon will be passed at this session of the Legislature. The bill has already been reported back to the House with a recommend that it be passed. There seems to be no opposition on the part of the Legislature."

THE thoroughbred stallion, Hanover, by Hindoo, who won world-wide fame as a race-horse under the colors of the Dwyer Bros., when he developed navicularthrititis, was nerved, retired to the stud of Milton Young, who paid \$25,000 for him, and recently developed inflammation in the coronary region from bruising of the tissues while pawing at the approach of feeding time, was destroyed by being chloroformed on March 23.

H. L. RAMACCIOTTI, D. V. S., of Omaha, Neb., whom all attendants at the last meeting of the U. S. V. M. A. well remember for his untiring devotion to their social pleasure while sojourning in the Nebraskan metropolis, has been presented by the Trans-Mississippi Exposition Commissioners with a diploma and bronze medal for services in promoting the success of the exposition. The Doctor feels very proud of the honor.

AT the April meeting of the Veterinary Medical Association of New York County Dr. H. D. Gill will read a paper on the subject of "The Important Veterinary Events of Next September," referring to the "Veterinary Jubilee" which is to occur in New York City during the second week of that month, when no less than six associations will convene in Gotham. Dr. R. S. MacKellar will present the subject of "Paraldehyde in Veterinary Practice."

VETERINARIAN J. R. SHAW, of Honolulu, H. I., had the misfortune to have his leg fractured on January 30th, by being thrown from his buggy as the result of a collision with a hack. At the date of our information the patient was well on the road to recovery, his friend, Dr. W. T. Monsarrat, being in charge of his practice. By the way, this reminds us that REVIEW readers are promised a letter from Dr. Monsarrat descriptive of veterinary matters in Uncle Sam's new possession.

ABOUT DIPPING CATTLE.—Chief Salmon, of the Bureau of Animal Industry, answers a correspondent in the *Breeder's Gazette*, of February, by saying that the Government will not recognize dipping at any place unless a permit has been issued for the establishment of a dipping vat and an inspector stationed there to see that the dipping is properly done. He also announces that all dipping is suspended for the present on account

of the injury to cattle which occurred in carrying out this operation last fall; but that experiments are being conducted to secure a dip that will not damage the animals. When this has been accomplished public notice will be given and dipping resumed. He further replies to a query as to the danger from Texas steers wintering in Kansas that it will depend upon the severity of the weather—if mild there is danger of the ticks not being destroyed.

THE New York County Society protested vigorously to the Health Department against the examination of any but veterinarians for the position of meat inspectors, especially since the questions submitted by the Civil Service Commissioners contained many purely technical and professional questions. The answer was the "deadly gleam," with the assurance that they were powerless, since the appointments could only be made from the list furnished by the Civil Service Commissioners.

EFFICACY OF THE NEW TEXAS FEVER DIP.—Dr. Salmon, chief of the Bureau of Animal Industry of the Agricultural Department, says that official reports received concerning the Texas cattle shipped to Rockford, Ill., after having been dipped at Fort Worth on July 22, indicate that the dipping solution is efficacious. While it is stated that several of the animals died *en route* their death was probably due to overcrowding in the cars and not to the fever tick or any injurious effect of the dipping solution. Dr. Salmon says that the department agent has reported that the Texas cattle were free of ticks upon arrival at Rockford. Dr. Norgaard, of the Agricultural Department, has left the city to inspect and report upon the condition of the second bunch of Texas cattle dipped at Fort Worth and shipped to Rockford. It seems to be the opinion of officials here that the new dip will effectually remove the fever tick and permit the shipment of Southern cattle to Northern States for fattening for the market.—(*Breeder's Gazette*.)

THE INSPECTION OF MEATS.—More than one-fourth of the entire appropriation made this year by Congress for the Agricultural Department goes to what is called the Bureau of Animal Industry. This name may convey only a vague impression to most persons, but one important duty of the bureau is that of meat inspection; and the extent to which this task is now carried on accounts largely for the outlay. The matter becomes of more interest since the Meat Inspection bill passed by the Bundesrath at Berlin restricts the importation of foreign meats to certain ports and stations in order to facilitate inspection, while

it has been proposed to appoint, under the coming legislation of the Reichstag on the same subject, a German corps of inspectors, who shall go to such places as Chicago and Kansas City, and there examine all meats destined for Germany, issuing certificates that will be accepted as conclusive in that country. It is urged that this would be only an extension of our system of having American Consuls legalize in Germany exportations to the United States. But whatever Germany may do, there is a good deal of official inspection here already, and it includes all the beef and the greater part of the pork sent to Europe, although not all that which enters into interstate commerce. The last fiscal year's area of inspection took in thirty-five cities, and included 135 abattoirs, besides many stockyards. The inspections covered 9,228,237 cattle, 10,028,287 sheep, 468,199 calves, and 31,610,675 hogs, making a total 51,335,398 animals. Of these 104 cattle, 741 sheep, 67 calves and 9679 hogs, a total of 10,591, were condemned at abattoirs, and 27,491 cattle, 9594 sheep, 2439 calves and 66,061 hogs, a total of 105,585, were rejected in stockyards. There were 9,025,291 more animals inspected that year than the previous one, and 15,417,919 more than the year before that. The number of animals condemned at abattoirs was 3275 fewer than the previous year, but the number rejected in stockyards was 27,247 greater. Of the total inspections for the year 31,213,966 were set down as for "official abattoirs" in the cities where regular inspections are made and 20,121,432 for abattoirs in other cities and for miscellaneous buyers. Here are further statistics of the year's work: "The meat-inspection tag or brand was placed on 14,815,753 quarters and 968,014 pieces of beef, 5,448,477 carcasses of sheep, 217,010 carcasses of calves, 680,876 carcasses of hogs, and 394,563 sacks of pork. The meat-inspection stamp was affixed to 4,433,569 packages of beef products, 5163 packages of mutton, and 10,145,048 packages of hog products, of which 374,131 contained microscopically examined pork. The number of cars sealed containing inspected meat for shipment to packing houses and other places was 18,631. There were issued 35,267 certificates for meat products which had received the ordinary inspection. These covered exports, comprising 1,256,716 quarters, 67,120 pieces, and 735,814 packages of beef, weighing 339,650,091 pounds; 5163 packages of mutton, weighing 324,996 pounds; 39,212 hog carcasses, and 653,564 packages of pork, weighing 244,956,482 pounds. The cost of this work was \$409,138.09, which makes an average of 0.8 cent for each of the 51,335,389

ante-mortem inspections, besides covering all the subsequent work of post-mortem inspection, tagging, stamping, etc. The cost of inspection has been growing gradually less year by year. The average cost per head was $4\frac{3}{4}$ cents in 1893, $1\frac{3}{4}$ cents in 1894, 1.1 cents in 1895, 0.95 cent in 1896 and 0.91 cent in 1897." The number of pounds of microscopically inspected pork sent to countries requiring inspection was 120,110,356, against only 42,570,572 the previous year; and this was supplemented by 161,303 pounds for other countries. Again, there were 859,346 inspections of American cattle for export, besides some Canadian, and 418,694 were tagged, with 1438 rejected, while the actual number of cattle exported was 400,512. Of sheep there were 297,719 inspections, 180 rejections, and 147,907 actual exports. There were also inspections of 177,772 cattle and 64,207 sheep imported from Mexico. These figures show to what an extent the work of inspecting meats and meat products has already been carried. It will continue to increase as the industry of stock raising, both for home and foreign consumption, grows. —(*New York Sun*, March 18.)

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AMERICAN VETERINARY REVIEW.

MAY, 1899.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

THE ILLINOIS VETERINARY BILL.

We very cheerfully give space to the communication of Prof. L. A. Merillat, of Chicago, published elsewhere in this issue. The bill referred to came into our hands through the courtesy of the writer of that letter, and we disclaim any intention of working at cross purposes with the veterinary profession of Illinois. When this bill was carefully read and reread by us we were innocent of a knowledge that it had been endorsed by the associations of that State, and submit that from an exterior view one would hardly think that it could have been. If, under the exigencies of the political situation in that State, the bill in question is the best that can be enacted it is a matter resting entirely with the profession there, and others must be satisfied. It would appear, however, to one not thoroughly versed with the condition of affairs, that no law would be preferable to this one. We as thoroughly negative an intention to refer to the present State Veterinarian in a personal sense. He may be the peer of his predecessor, or his superior. We did not in this matter refer to men, but to methods, and the REVIEW's reference to Dr. Lovejoy as a "political creature" was in the sense that he was the "creation" of politics, for surely there was no demand on the part of the veterinary profession for his appointment; but he was forced on the State by virtue of that peculiar factor in politics known as a "pull." However honorable he may be personally, the gifted writer

of the communication cannot believe that he could have become in one lifetime as proficient in the intricate propositions of modern scientific medicine as though he had received the basis of his education within the walls of a veterinary school, and he will not claim that the profession in his State can afford to place in the most important position a non-graduate, when there are hundreds of men who would honor both the post and profession through their ability to direct its affairs along scientific lines.

If the bill means literally what it says it strikes very harshly upon ears which are accustomed to hear clearer distinctions between educated veterinarians and those without professional training. If it means that it does not intend to do what it claims or insinuates that it will do, it is deceiving the lawmakers and the people. If that commission has the power to license a candidate who has never attended a college, or indulged in practice, the law puts a premium of \$20 a piece on dishonesty, whether the commission accepts it or not.

We reiterate, that the measure is not what it should be, and the question may well be asked, "Is it not better to have no law on the subject than the one proposed?"

FACTORS CONTRIBUTING TO VETERINARY PROGRESS.

To any intelligent person following the course of veterinary medicine in America, a very rapid improvement in men and methods must be apparent. The solution of many problems in sanitary medicine is an evident indication that minds are active along scientific lines and that ability is guiding the efforts put forth. To illustrate the force of these remarks it is but necessary to refer the reader to the address delivered by President Salmon at the opening of the last meeting of the United States Veterinary Medical Association, printed in full in the REVIEW for October, wherein a complete résumé of the advance made in this department is given. In the character of the associational work being done we get further evidence of the permanent progress

of our profession, the papers presented being usually the result of careful reasoning upon subjects of intelligent observation and experiment, while the discussions thereon reflect the fertility of active brains. The profession is forcing public appreciation and respect largely through the dignity, education and uprightness of its members, who have expunged the "horsey" or "sporting" element in their personality, which was at one time thought to be an inseparable accompaniment.

What are the factors operating to produce these results? Greatest credit is due to the schools of veterinary medicine, which have gradually increased their requirements of preliminary education until it has reached that point when an accepted student must be a man of fair education—the basis of all progress. When once in the profession this educated veterinarian finds ready to increase his accomplishments the veterinary association and the professional journal, and, availing himself of either or both, is carried onward in an irresistible stream that flows toward perfection of knowledge and reward of merit. It is the belief of the writer that the grasping of the opportunities thus offered are as essential to the completeness of veterinary education as the school is to its incipency.

NEW YORK HORSE DEALERS declare that not since 1892 has there been anything like the inquiry for horses that there is this spring, with good prices and the supply away below the demand. The riding academies are filled to overflowing, and there seems to be a general awakening to the fact that the horseless age has been postponed some two thousand years.

THE REVIEW'S desk is loaded down with the contributions of its collaborators and correspondents. We ask the indulgence of those who have kindly forwarded manuscript of papers, case reports, etc., assuring them of their appreciation and that they will be published as rapidly as possible. During the summer months, when association meetings are omitted, we will have ample opportunity to catch up.

ORIGINAL ARTICLES.

NOTES ON ODONTOMES.

BY W. L. WILLIAMS, PROFESSOR OF SURGERY AND OBSTETRICS, NEW YORK STATE VETERINARY COLLEGE.

Read before the New York State Veterinary Medical Society, September, 1898.

Literature upon tooth tumors in domesticated animals is scant, standard works on surgery and dentistry being well-nigh silent, compelling the student to rely almost wholly upon current veterinary literature.

In the latter field J. Bland Sutton * contributes a highly instructive article dealing chiefly with the origin and classification of these neoplasms, upon which the writer † based a somewhat extended contribution dealing largely with the clinical and operative phases of the subject, adding later a brief case report. ‡ Other case reports occur here and there throughout our literature, though largely fragmentary in character.

Desiring to avoid repetition, we confine ourselves to a few notes which though not directly united by logical relationship, may yet possess interest to the student and practitioner as related to the subject in chief. First, let us remark that the horse is pre-eminently subject to tooth tumors.

While odontomes have been recorded by Sutton and others in man, goats, bears, and other animals, we do not find them nearly so frequent in any other as in the horse. This tendency to aberration in the development of horses' teeth is not confined to the production of tooth tumors within the normal alveoli, but very frequently evinces itself in the form of supernumerary teeth, such as the imperfect supernumerary molars or wolf teeth, and not infrequently extra molars of full or exaggerated size situated behind or before, outside or inside the normal molar arcade, or we may find a few extra incisors or a complete double set.

* *Jour. Comp. Med.*, Vol. XI., p. I.

† *AM. VET. REVIEW*. Vol. XV., p. I.

‡ *Ibid.*, Vol. XVIII., p. 101.

Nor is nature apparently satisfied with these aberrations within or about the dental alveoli, but develops a variety of odontoid formations in such organs as the ovaries, testes and especially at the base of the ear. These ear teeth or ear fistulæ are of more than passing interest, being practically the exclusive heritage of the horse, while their origin and relations are shrouded in mystery. The parts composing them are typical dental tissues, being especially rich in what appears an extra hard and translucent enamel, but how, where or why they form seems undetermined.

These odontoid masses are found firmly attached at or near the base of the ear, and similar neoplasms having a like relation to skeletal bones are not known elsewhere outside the usual alveoli. These facts suggest some peculiarities of the so-called petrous portion of the temporal bone of the horse. While in most mammalia the petrous and squamous portions of the temporal bone become fused, it remains so free in solipeds that even in the cranial skeleton of old animals, if the soft tissues are dissolved, the ear bone is loose and moveable within its socket. Thus the horse has a real distinctive ear bone, a part of no other bone, the most moveable of all cranial bones, and set in a depression in the surrounding cranial bones almost as a tooth within its alveolus, and having within it an important sensory nerve, and the bony tissue attains a hardness approaching dental tissue.

Among the many cases of recorded ear teeth there is a sad deficiency in precision as to the relations and attachments of the neoplasms to neighboring parts, and the ultimate result of attempts at surgical treatment. We do not know the precise location or attachments to the neighboring bones, whether the tooth-like mass was fused with the bone or fixed in an alveolus or calyx, and although deaths are recorded due to fracture of the cranial bones in attempts at removal, the recorded recoveries are as a rule somewhat vague, being apparently based largely upon non-return of the patient, which might follow either recovery or an unchanged condition after the first operation. We have ob-

served some supposedly recovered cases which were not at all benefitted. If these masses have a calyx or alveolus and the entire odontoid tumor is removed certainly permanent recovery should and no doubt does occur.

The odontoid masses in the testicles and ovaries are of both scientific and practical interest, tending to render the genital gland useless and causing the testicle to remain abdominal in some cases. They frequently assume a form and histological structure closely simulating a normal tooth.

Our chief interest must, however, be centred in those odontomes occurring within or near a normal alveolus and representing either a normal tooth follicle or a germ emanating from or near by one of these.

As we have insisted in our prior contribution, most of the serious diseases of horses' teeth are due primarily to aberrations in their development and have their origin at an early age though coming to our notice sometimes only after a lapse of several years. In our experience fully 90 per cent. of major dental operations are necessitated by these aberrations, and when critically studied a large proportion of the cases of so-called "caries" of the molars and of "nasal gleet" are due to this cause.

Admitting the possibility and existence of primary caries of equine molars, we have as yet failed to secure a specimen exhibiting necrosis of the dentine in active progress except when evidently secondary to other important defects. True, most authors describe caries in equine molars and lead the student to believe it common, though Müller* agrees in his observations with our findings.

Those authors who describe "caries" of horses' molars usually figure the disease as occurring at a part of the tooth in which dentine should not normally occur. In those specimens which we have been enabled to collect which simulate caries or which might by some be termed caries we find in addition to various irrelevant changes :

1. Deep infundibuli in the ivory column on the tabular sur-

**Speciellen Chirurgie*, S44.

face due to the rapid wearing away of soft ivory in aged horses—in which class of animals the so-called caries is wanting.

2. The absence of the ivory column at some portion of the tooth from crown to fang, the adjacent enamel layers being free from any remnants of dentine which should here and there persist in genuine necrosis of ivory.

3. A total absence in superior molars of the column of cement which should fill the central infundibulum of enamel from table to fang.

These two latter conditions inevitably lead to early longitudinal splitting of the tooth. If the cement fails to form within the central infundibulum, food presses into the cavity as soon as the tooth erupts and fracture of enamel into pulp cavity quickly results. If dentine fails to form, the tooth has not been long in wear until the arch of enamel wears through, exposing the vacant ivory space with impaction of food, infection, suppuration, fistulæ, etc.

Thus we find explanation for the fact that most major dental operations on horses are called for upon young animals ranging from two or three months to five or six years of age, or if in aged animals, these have a history of disease dating back to early life.

In our prior contribution we described and illustrated epithelial or enamel, compound follicular, radicular or dentine and composite odontomes, follicular cysts and cementomata. We desire to add two unique cases, one a fibrous odontome, completing the list of species as described by Sutton, the other a multiple composite odontome, representing gross aberrations in the tooth germs of three or four contiguous superior pre-molars.

Heretofore fibrous odontomes have been recorded in rickety children and young caged animals, but so far as we have found, not in the horse.

The patient was a 12-year-old black mare of common breed, reared in a locality where osteoporosis and perhaps other related maladies are not uncommon, but offering no history of constitutional affection. She was thrifty and apparently sound until

about two years of age, when she began to show symptoms of dyspnœa. Examination revealed a moderately firm, fibroid-like tumor completely filling the right anterior nares. A country practitioner removed a piece of the tumor as large as a hen's egg and reported that a piece of "bone" had been broken and was projecting into the nostril, which he could grasp with forceps but could not dislodge. The removal of a portion of the tumor relieved somewhat the dyspnœa, the patient grew to moderate size and did ordinary farm work without apparent great difficulty and kept in good condition, but continued to exhibit some dyspnœa, nasal discharge and fœtor of breath.

Ten years subsequent to the advent of the disease she was on account of recent serious increase of dyspnœa and debility presented at the New York State Veterinary College Clinic, much exhausted from a journey of 14 miles, showing extreme dyspnœa, respiration oral and breath fœtid. The right nostril was completely occluded by a tumor projecting from behind forwards to within two inches of the opening of the nostril, while its size was so great that it had pressed the septum nasi over against the left turbinated bones, almost entirely closing the left nostril and necessitating oral breathing. The tumor was dark red in color, firm like a fibroma, smooth on the exposed surface and not attached to the adjacent nasal walls for some distance from the anterior end. The crown of the first right superior pre-molar was worn even with the gums, the other teeth being apparently normal.

After relieving the dyspnœa by tracheotomy, the patient was placed upon the operating table and the right nasal wall trephined slightly above the juncture of maxillary and nasal bones. We were above the tumor and found the nasal passage completely filled with decomposing food which had been pressed through an opening behind the first pre-molar and its exit anteriorly being prevented by the tumor, it accumulated in the passage until being completely filled it gradually dropped into the fauces as additions were pressed in in front.

The size and form of tumor having been determined another

opening was made directly over the affected pre-molar about one inch from the alveolar border and from this opening the external alveolar wall was cut away down to the margin, thus laying bare the body of the tooth for its entire length. A punch was placed against the tooth and a few sharp blows dealt with a mallet, which so loosened the member that it was readily grasped by the crown and removed entire, tumor and all, through the opening in the cheek, leaving behind an immense opening from the mouth into the nasal chamber.

The patient succumbed 48 hours later from gangrenous pneumonia due to inhalation of putrid food, which had fallen into the fauces through the posterior nares, the inhalation being in all probability due to the dyspnoea provoked by the long journey prior to operating. While operating the head was slightly depressed, which, in addition to tracheotomy, should have sufficed to prevent inhalation during the operation. Nevertheless, while operating, decayed food in very small amount escaped through the tracheotomy tube, but apparently from below. The precaution was taken after the operation to thoroughly irrigate the trachea and bronchi with normal salt solution and hydrogen peroxide, which irrigation was repeated after 24 hours.

The tabular surface (C) of the tooth (Fig. I) is not unlike the ordinary wearing surface of a premolar, except it is apparently composed entirely of a rather soft dentine, while higher up toward the anterior portion of the body on the median side there appear some fragments of enamel (D). The dental tissues proper extend from C upward to a point midway between D and A. The remainder of the mass anterior to D and superior to the line above mentioned consists of fibroid tissue generally free from adhesions to surrounding parts and directly continuous with the dental tissues. The free end (B) is smooth and globular. At A, showing as a slight depression containing a small rounded mass, is a small islet of hard dental tissue, apparently dentine. At P is dentine, which by necrotic erosion had caused an opening through the bony palate by which food

was slowly pushed up behind the tooth and its tumor into the nasal passage.

In shape the tumor is a bent cylinder, measuring on its superior or convex border about 6 inches, on its inferior or concave border about $3\frac{1}{2}$ inches, with an average thickness of 2 inches and weighing about 8 ounces av.

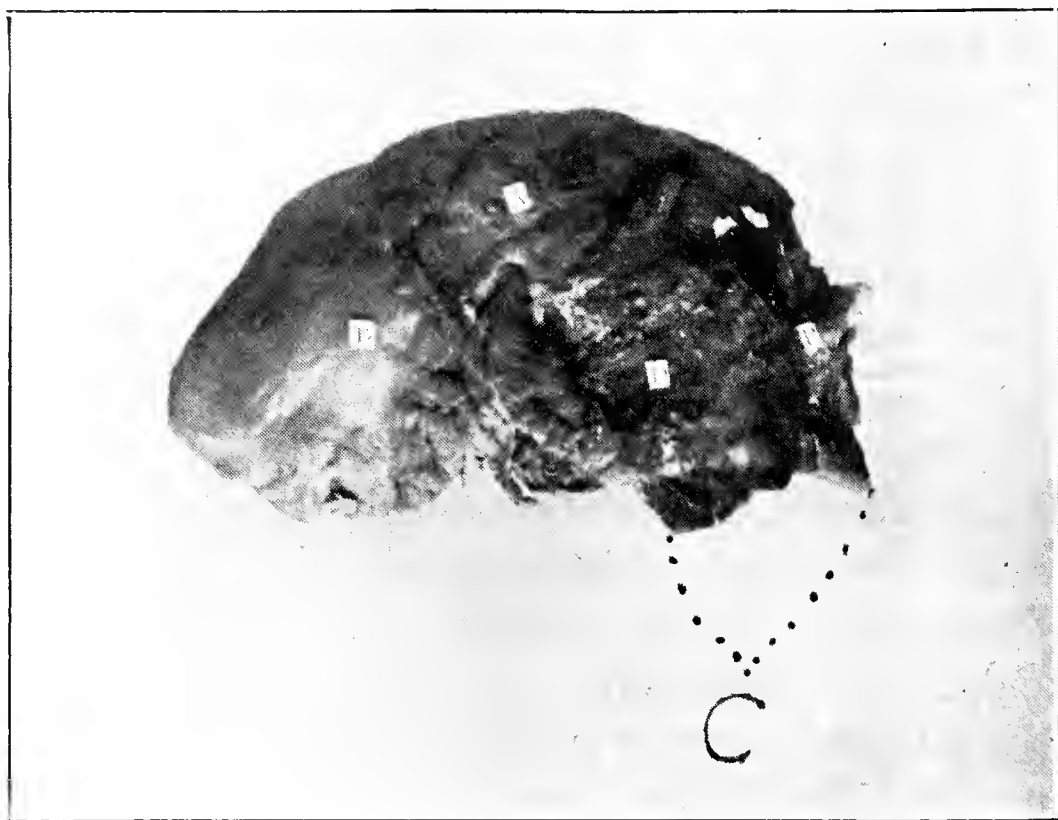


FIG. I.

Inspection of the tumor indicates that the neoplasm is the result of a fibrous proliferation of the tooth follicle, which impinged on the enamel and ivory organs to such a degree as to impair their development, and pushing upwards broke into the nostril and turning forwards grew down almost to the external nasal opening.

The second case we have to report is one of multiple composite odontomes in a two-year-old colt, sex and breed unknown, and history untold, except that the animal was destroyed because of the abnormality. Only the superior maxillæ are preserved, the right half of which is normal. In the left half (Figs. II, III and IV) the temporary premolars are normal and *in situ*, as are also the three molars, the first being in wear, the

second (or 5th) erupted but unworn, while the third molar, or 6th of the arcade (Figs. II and III), is not yet erupted. There is one apparently normal permanent premolar shown faintly

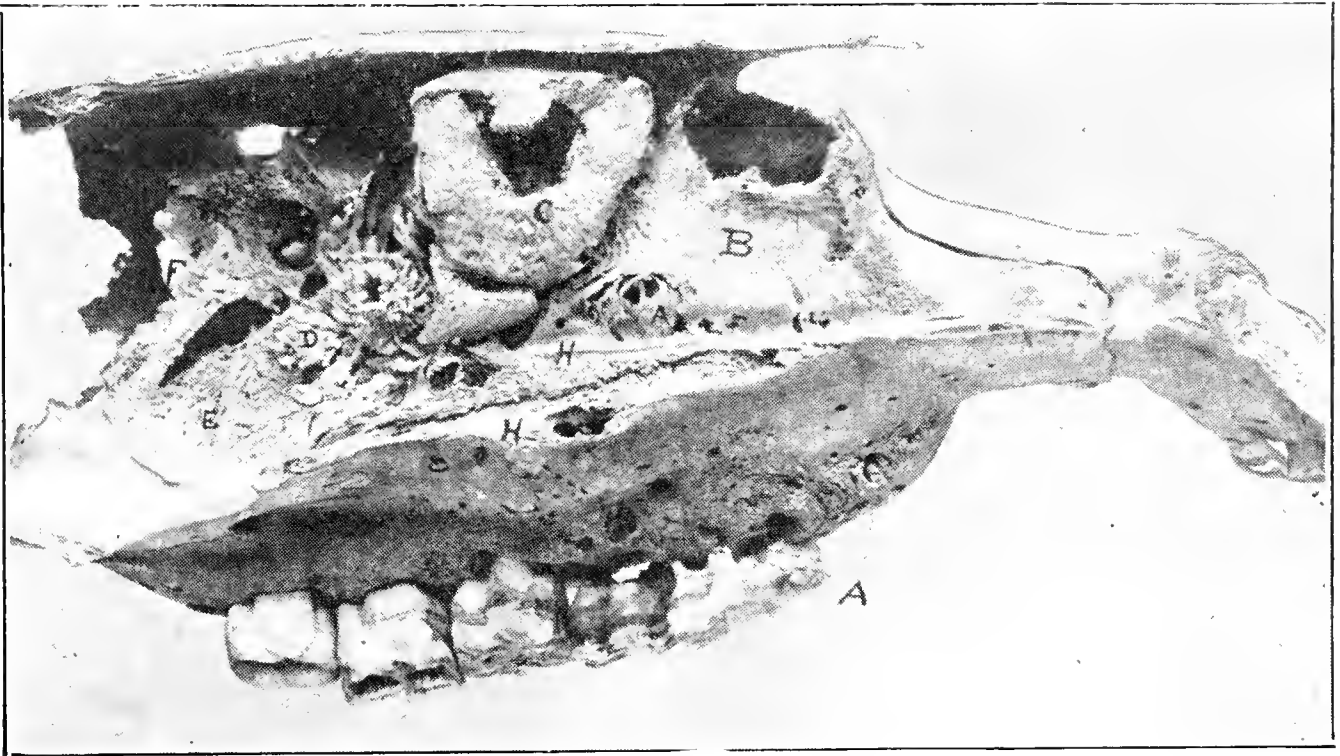


FIG. II.

through an artificial window at A in Fig. IV. It is apparently the second premolar, but is out of place, and while the crown

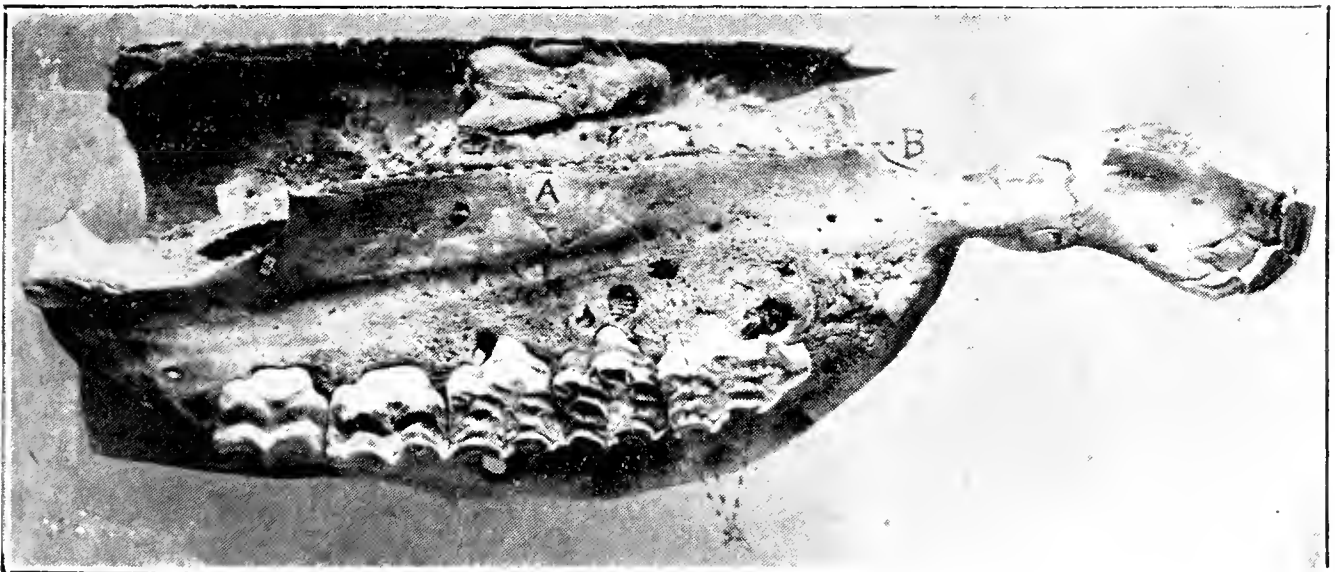


FIG. III.

is directed properly it is not in contact with the fang of either temporary premolar, but separated from these by aberrant

masses of dental tissue. Here all semblance to normality ceases and the process of dentition runs riot. The affected side of the face is enormously enlarged, as seen in Fig. IV, the facial bones, especially the superior maxillary, greatly bulged, soft and porous, while the specific gravity of the mass is greatly increased owing to the enormous amount of dental tissues, the affected side being four or five times as heavy as the normal.

Three large almost globular masses of fine, delicate porous bone (Fig. II, E, C and B) apparently represent the turbinated bones. The bony palate (Fig. II, H H) has been separated into two distinct layers and the space between occupied by loose cancellated bone, in which are imbedded numerous denticles, many of which penetrate through the bony palate, as seen at A, Figs. II and III, but had evidently not perforated the buccal mucous membrane.

Occupying the large caverns in the globular masses of spongy bone mentioned above as probably representing the turbinated bones, and behind the three masses in a fourth spheroidal cavity, are enormous irregular masses of dental tissue, chiefly ivory, rough, with sharp denticles or spurs, presenting in every direction like cockle-burs and weighing probably one pound each. The masses within the cavities of the sponge-like bones, B and C, Fig. II, do not show in photograph, while that of E is clearly shown at D, and the fourth cavity looking backwards shows a border of its denticular mass at F.

In addition to these masses the donor related that "thousands of little bones had dropped out" before the specimen was given into our care. These were no doubt denticles, as many yet remain, a few of which are shown in Fig. V. These take on curious and fantastic shapes; they are straight, curved, spiral, like a ram's horn, single, double, multiple, linear, globular. Some are quite perfect representatives of teeth in a general way, having a well-marked pulp cavity, around which are grouped in their normal sequence dentine, enamel and cement. Others, like the central mass in Fig. V, are indescribable irregular bunches of dentine or cement. Still other denticles are seen

which have both the form and structure of equine molars, the fangs of one of which is shown marked A, situated just above the bony palate midway between H and B in Fig. II.

The temporary premolars having developed and erupted normally, as have also the molars, it must be concluded that the aberrations had their origin in connection with the development of the germs of the permanent premolars, only one of which had apparently developed and its eruption prevented by the growth of odontoid masses between its crown and the temporary fang.

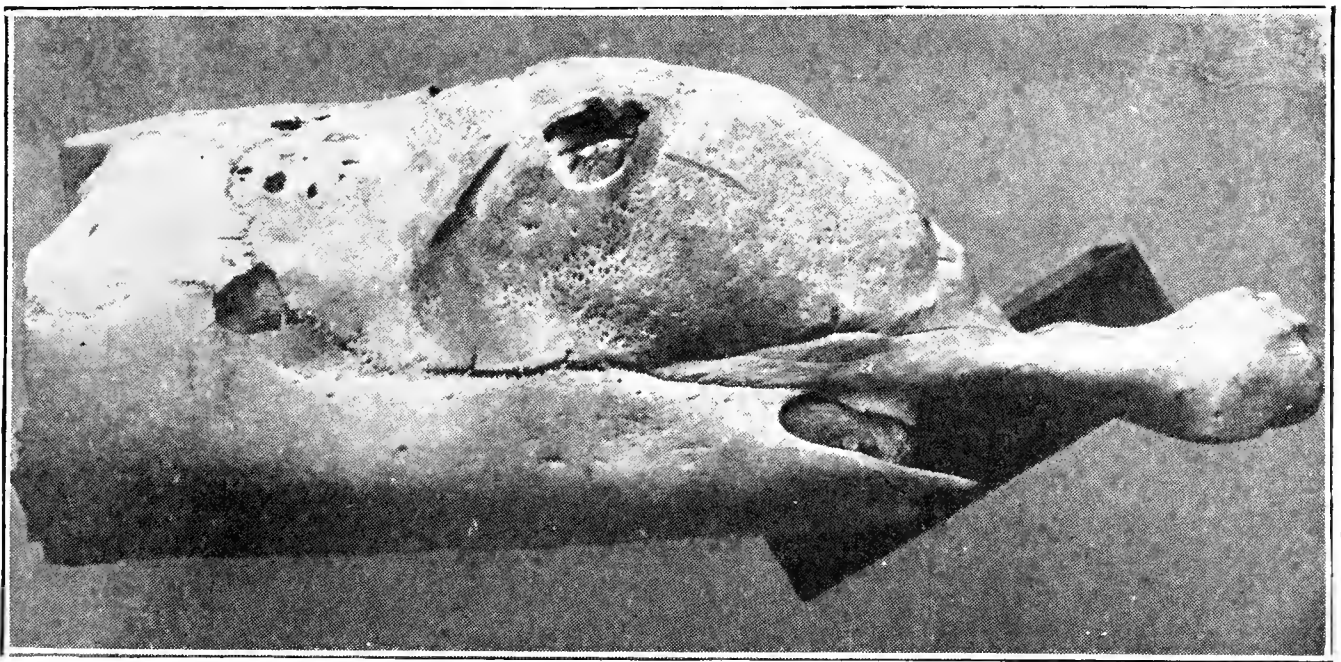


FIG. IV.

In our prior contribution we asserted that the prognosis of odontomes was very favorable under proper treatment. In a case like the last, had it been taken in time, the animal's life could probably have been saved, though at the expense of such great deformity as to nullify its value.

The first case related, though ending fatally, could have been favorably operated upon at an earlier date. The one case is extreme in its gross aberrations, while the other is no less extreme in point of neglect.

In the contribution cited we laid down as the rule of first importance in procedure that we should not apply force either by means of forceps or punch to an erupted tooth which might

be affected with odontoid enlargement until we had definitely learned its form and size, otherwise we might cause extensive and serious fractures of alveolar walls, palate, or other bones, but advised instead that the tooth be comminuted.

Recent experience in our clinics leads us to amend our rules. We now, in cases of erupted teeth which we suspect as being of an aberrant type, in the so-called tooth fistulæ, in those causing empyema of the facial sinuses and generally in those cases of serious dental diseases in young horses, trephine down upon the fang of the affected member, using a $\frac{3}{4}$ to $\frac{7}{8}$ in. trephine, laying bare the entire fang, freeing it from its bony covering by gouge, chisel and forceps, then with chisel cut away the external alveolar wall the full width of the tooth from the trephine opening down into the oral cavity, thus laying the tooth bare on its external surface from end to end and side to side. We then comminute the member to such degree and remove the parts by such measures as circumstances may indicate by forceps, punch, or gouge, through mouth or laterally through the cheek.

We find several great advantages from our method of operating.

1. Simplicity. By proper control of hæmorrhage every step of the operation is plainly in sight, and the result of each move is clearly seen. It is easier, neater, and less painful to the animal than violent removal with heavy forceps or by means of the punch.

2. We avoid more certainly than by any other procedure injury to adjacent teeth which may necessitate further removals.

3. It causes less injury to the bones. A piece equal in area to the lateral surface of the tooth being removed clean, the other surrounding bones being left intact and unharmed, while by the usual methods extensive fissures and fractures are common. Especially is this true of operations on the inferior molars, where serious fractures at times occur, leading to tedious recovery, or even death of the patient, with litigations for malpractice or other disagreeable complications.

4. The wound is freely open and its progress readily watched. If pieces of dental tissue remain behind, so common by other methods, and always preventing recovery, they are readily observed as soon as granulations appear, and can be easily removed. The wound is cleaner, more readily dressed and the patient suffers less pain from dressing and stands more quietly.

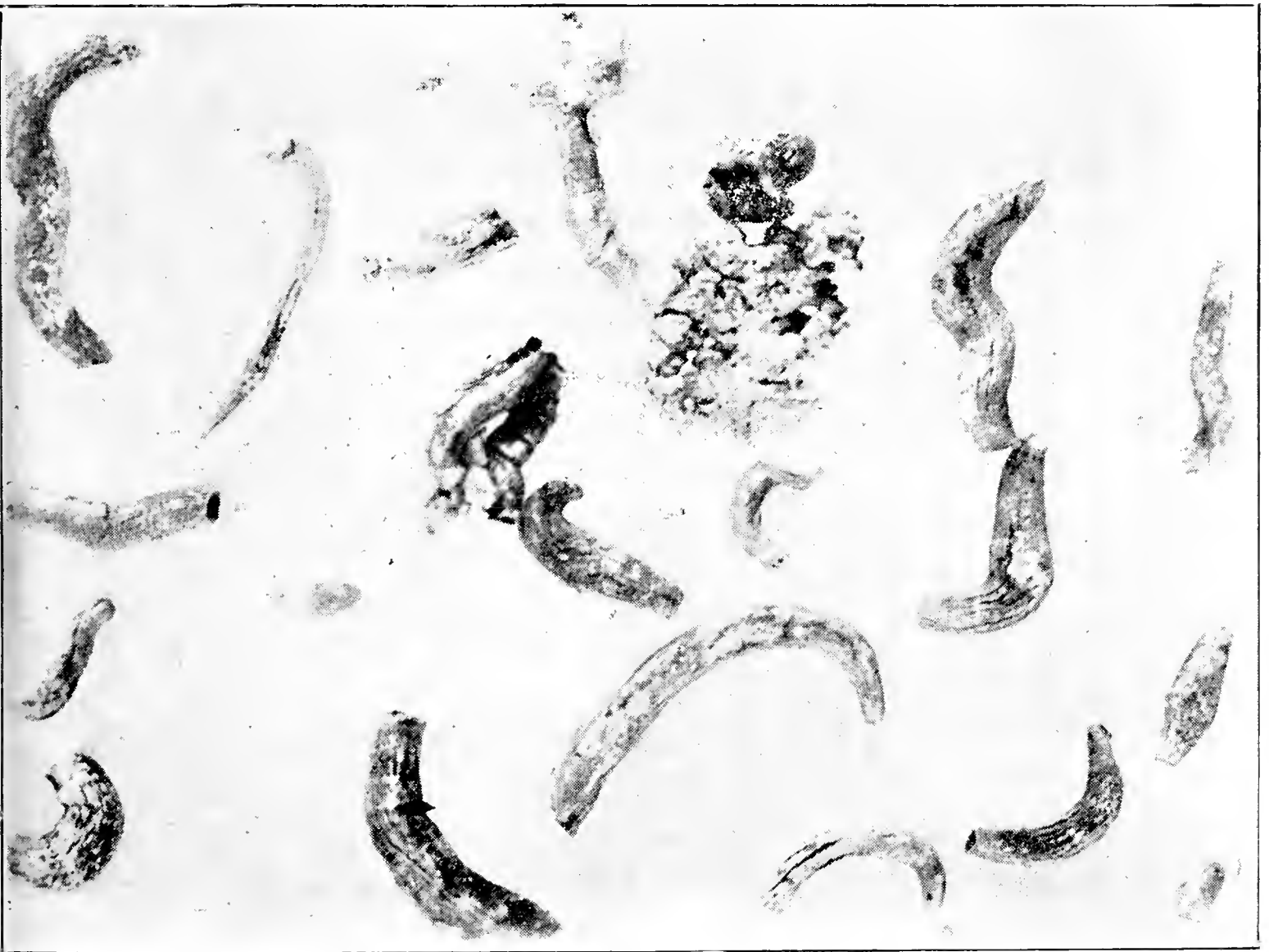


FIG. V.

5. It anticipates and prevents alveolar fistulæ, so common after other methods, not only because it permits free observation, facility for dressing and for the removal of fragments of tooth and bone, but prevents to a great degree the impaction of food in the vacant alveolus, which constitutes a fertile source of fistulæ.

6. If fistulæ persist after operating by the usual method, the removal of the alveolar plate by the above plan, causes recovery to take place, except when due to damage to a neighboring tooth, to a retained fragment of tooth, etc.

7. When oro-nasal fistulæ exist through alveolus or bony palate by which food passes from the nose to the mouth, as occurs frequently with odontomes, this line of treatment generally brings about prompt and radical cure by destroying the chief obstacle to recovery, which consists in the bony plates propping apart the molars on either side of the vacant alveolus. If this external plate is removed the two molars bordering upon the emptied alveolus approach each other far more rapidly and effectively. We must rely upon cicatricial contraction in wounds of bones in the same manner, though different degree, as in other tissues.

It may be of interest to state that in trephining the facial bones we invariably excise the skin flap over the area of bone to be so removed and generally make the skin wound greater than the trephine opening in the bone, while in removing the alveolar plate from the trephine hole to the mouth we operate subcutaneously or subperiosteally. The flap over trephine opening is constantly in our way, becomes sensitive, causes the patient to resist dressing, and shuts out light and air, so valuable in a wound which we do not expect to keep aseptic. The injuries to the tissues in bending the flap in dressing facilitates infection, which is further favored by the increased wound area in the flap method which adds the area of the flap to the superficial wound. No blemish remains after the excision of a circular flap of 1 ½ to 2 inches.

"THE SAMPLE COPY OF REVIEW IS MUCH LIKED.—I enclose P. O. money order for subscription."—*W. N. Babcock, V. S., Scott, N. Y.*

"I APPRECIATE THE REVIEW VERY MUCH and would not be without it; think every veterinarian who wishes to keep up with the times should take it."—*W. E. French, Daytona, Fla.*

MILK FOOD AND ITS HYGIENIC MARKETING.

BY E. B. ACKERMAN, D. V. S., BROOKLYN, N. Y.

Read before the February Meeting of the New York County Veterinary Medical Association.

Dairy husbandry has been an industry of the people of all countries and of all times, and its production of milk as an article of human food may well be given the place of most importance. Physiologically it contains all the proximate principles to support life readily assimilated by the human organism.

The child begins its career upon milk, and much of its future depends upon the quality, both from a chemico-physiological and patho-bacteriological point of view. Aside from the child, it is largely consumed by the well and strong, not to forget the invalid, where it is second in importance to child feeding.

It has been said that the milk supply of this country for a year amounts to 5,210,000,000 gallons, while in Greater New York City the daily supply amounts to 750,000 quarts. Our large cities spend millions of dollars annually upon its water supply. This, of course, is a necessary expense, but equal in importance is the milk supply from the standpoint of public health, and upon this they begrudgingly spend a few meagre thousands.

Milk, of course, both from its origin and its composition is an animal food, and it has long been recognized even by savages that a preparatory treatment (which we call cooking) is necessary before animal foods are ready for use. This fact was probably forced upon the savages by unpleasant consequences of eating this food raw. This preparatory treatment is necessary to destroy the various harmful forms of low life which frequently accompany animal foods. The germ theory of disease has shown us that many of the forms of disease most fatal to human life are due to these organisms, which are generally known as bacteria or microbes. It was not until the year 1870 that milk was generally considered capable of carrying epidemic diseases,

and since that time statistics show over one hundred epidemics of typhoid fever with 6700 cases ; 41 epidemics of scarlet fever with 2400 cases, and 18 epidemics of diphtheria with 1000 cases, to say nothing of other diseases when no record or data have been kept or no mention made as to the number of tubercular cases established by milk.

The question of a pure milk supply is possibly of no less interest to the medical profession than to the veterinarian, and both should work hand in hand for the mutual benefit of the people. While it seems to me that our sister profession are sometimes lax in their duties as to the health of their patients in not being as particular about the source of milk supply, or the proper care of milk after delivery, the veterinarian on the other hand is interested chiefly because some of the diseases which render meat and milk unfit for human consumption are indigenous to his class of patients, namely, the cow, and the animal industry represents considerable of the wealth of this country, and the care and management of this wealth largely fall upon the shoulders of the veterinarian. To take the disease tuberculosis, as an example. I might say that the first prophylactic treatment begins with the veterinarian in stamping out the disease where it starts, that is, in the cow.

Now, to get back to milk and to make a valuable food still more desirable, I would say that the proper place to begin is with the animal that produces it ; thus begin with the dairy cow. Under this head we would have the following subdivisions, viz. :

First. The condition of the stable as to ventilation, drainage, mode of feeding and watering.

Second. Health of cows. This would include all diseases as well as the tuberculin test for tuberculosis.

Third. The feed. This includes quantity, character, water supply, etc.

Fourth. Care of cows. *Especially* before milking.

Fifth. Care of utensils.

Sixth. Health and cleanliness of attendants.

Seventh. Care of milk. This would include the handling and shipping. Milk is an article of diet that must be kept within the reach of all at a popular price, and all improvements kept within a reasonable expenditure, the principal thing being health and cleanliness.

The diseases that may be transferred through the milk are those that the cow is subject to, and which can and do pass through the secreting organ into the milk, and those which are affected through external causes, as from the organisms on the udder and skin of the cow, or on the hands or clothes of the attendant, and from the water used to wash utensils. Milk being an excellent culture medium and having many opportunities of being contaminated in the various handlings it receives, should be removed from stable at once to a more cleanly place especially designated or built for the purpose of straining, aerating and cooling. Many of the epidemics caused by milk have occurred by contamination after the milk has left the cow and before delivering to customers.

Prof. Ravenel says that ordinary milk as it reaches the consumer is usually richer in bacteria than the sewage of our great cities, and that various samples experimented with have shown anywhere from 15,000 to 2,200,000 germs per cu. cent. These facts mentioned can be greatly modified by a little carefulness and cleanliness, and belong to that part of the dairy which comes under the head of purity of milk.

Now, even with the greatest care many germs may still be present, and to destroy these and make the milk marketable, the remedy is simple. The germs of all the above diseases are absolutely destroyed by the application of a moderate heat. This process of heating applied to milk is known as "Pasteurization" or, if carried still further, "sterilization." Therefore, the remedy is,—use only Pasteurized milk. It is not necessary for me to go into detail of the process of Pasteurization, for I believe you all understand it. It is subjecting milk, an animal food, to the preparatory treatment which other animal foods receive. But it may be asked, "If the remedy is so simple why is this process

not always carried out in the kitchen?" Failure to appreciate the great danger of uncooked milk is doubtless one reason. The trouble and annoyance connected with the process another, an unpleasant taste and an alteration of the appearance of the milk through the separation of stringy material, another.

The above disadvantages are avoided, and in addition to the absolute safety of the milk, many other advantages are obtained by the use of the Walker process of bottling and distributing milk. This process consists in distributing Pasteurized milk in glass syphons, the syphon containing above the milk a body of insoluble gas, usually air, sufficient to expel the milk. The advantages of this process may be enumerated as follows, viz.:

First.—Absolute safety. The milk is Pasteurized, therefore free from disease germs. It is contained in a sealed package absolutely secure against the introduction of germs from the air.

Second.—You can draw milk out of this syphon, but dirt, dust or air positively cannot get in.

Third.—Increased keeping qualities. The spoiling of milk is due to the micro-organisms it contains. If you destroy these the milk will keep, provided it is not infected with organisms from without. Ordinary Pasteurized milk is readily infected from without, as in transferring it from the Pasteurizing vessels to the bottles, hence it does not keep much longer than ordinary milk. Milk put up by the Walker process cannot be infected from without, hence it will keep, etc.

Fourth.—Possibility of using a part of the contents without contaminating the remainder. The instant an ordinary bottle of Pasteurized milk is opened, the effect of the Pasteurizing is gone, for the contents having been exposed to the air become infected, and the condition of the milk is the same as before Pasteurization. From a syphon of milk prepared by the Walker process you may draw as much or as little as you please without affecting the contents remaining.

Fifth.—Impossibility of skimming. A syphon of Walker

process milk cannot be skimmed or adulterated, either wilfully or accidentally.

Sir William Broadbent in his address before the Society for the Prevention of Tuberculosis says that English statistics show that nearly 60,000 deaths are every year recorded as due to tuberculosis in England and Wales, and that even this is an improvement over 50 years ago of 50 per cent. One form of disease only shows no decrease, and that is *tabes mesenterica*, the disease of the bowels in children traceable to tubercles conveyed by milk, and this has increased and is increasing.

The one great cause of this disease is cows which have the disease, and it sooner or later finds its way in the milk as do all other diseases.

A couple of months ago at the great Smithfield show one of the best breeders of cattle, fancy stock and dairy cows, when spoken to on the subject of tuberculosis and the dangers of milk, acknowledged the truth of it, and replied, the cure is simple. To sterilize the milk is cheap and simple and would benefit both customer and producer, for the former would not only get pure, healthy milk, but would get it cheaper, as sterilized milk would be put up in bottles, could be kept for a long time and could be dealt with in much the same fashion as aerated waters are. This is a fact and this assertion is made since the Walker process patent was allowed.

Society and our Government have recognized the fact that it is impracticable to stamp out tuberculosis in cattle by the immediate slaughter of all diseased animals, but the public will insist that it has a right to milk supply which is absolutely free from tuberculosis and other infectious and contagious diseases, that will not scatter death among the children of all classes of the community.

Now, properly conducted dairies and milk cared for by this process will reduce *tabes mesenterica* in children, will act well with the sick and help keep the well from getting sick.

Prof. Stohman, of Leipsic, Germany, in Muspratt's "Chemistry," Vol. 5, page 1690, says, "If it were possible to keep ster-

ilized milk permanently free from bacteria, it would be desirable to subject all milk to this process immediately after milking, and to bring no milk into commerce except in the sterilized state. Unfortunately only a process of sterilization which is carried out in the vessels from which the milk is to be used assures a guarantee of permanent freedom from bacteria. That such a process cannot be carried out on a large scale is evident. All other processes in which the milk after heating come in contact with the air afford no security that milk which has once been made germ free will remain so. Under ordinary conditions therefore the sterilization of milk of commerce is of little use, as milk so treated between the time of sterilization and use has many opportunities to become infected with the most various kinds of germs. If the cooling takes place in open coolers all sorts of germs may be carried to the milk by the air. There is the further danger of infecting the milk from improperly cleansed vessels. The milk may in the storeroom of the dealer become infected with the germs of disease. If such milk is then used with the belief that germs are absent it may have an injurious effect on the health, and indeed under certain circumstances more injurious than if it had not been sterilized. Sterilization whether by simple heating or boiling or in suitable apparatus should always be carried out at the place where milk is to be used and a short time before use, and all processes which do not afford a guarantee of permanent freedom from bacteria should be entirely excluded."

I claim that the Walker process overcomes the only two objections Prof. Stohman offers, viz.: 1st, it does not allow of contamination after Pasteurization ; 2d, it is practical on a large scale—and, as he says, if that were practical it is the only way milk should be used.

With this process milk will keep good for two or three weeks, hence no waste. Pasteurizing it under pressure keeps the normal emulsion and the cream does not rise of any account. It makes an improved milk to the taste, giving it more body characteristic of cream.

I had the good fortune to be present at a public meeting of the Philadelphia Department of Health last year, in which the question was discussed as to which was the best, bottle or bulk milk in cans; the arguments were good on both sides, but the bottled milk came out victorious, having everything in its favor, and this process is as far ahead of ordinary bottled milk as bottled milk is above that in cans opened in the street every block or so.

The Abbott Dairy of Pennsylvania and the Walker-Gordon dairies of New York and Philadelphia put up sterilized or Pasteurized milk in sealed bottles, charging a higher price for it, but only sell in pints, so you can use most of it at time of opening, else if kept it is no better than ordinary milk, and for infant feeding the Walker-Gordon people put up Pasteurized milk or Pasteurized modified milk in glass tubes, each tube being a meal. Thus if you feed the baby eight times in a day you buy eight tubes. With our Walker process you have all the tubes in one, and what you don't use to-day can go for to-morrow.

Gentlemen, I could say much more about the advantages of this process for putting a hygienic and safe milk food on the market, but I will not take up any more of your time at present.

I thank you for your undivided attention and invite you to come up and sample this milk and see the perfection with which it is handled.

STOCK-FARM VETERINARY PRACTICE AS A POST-GRADUATE COURSE.

BY A. N. LUSHINGTON, V. M. D., LYNCHBURG, VA.

Read before the annual meeting of the Pennsylvania State Veterinary Medical Association, March, 1899.

I. *Study of Animal Life on the Farm.*—The study of animal life on the farm is both interesting and instructive. The conditions under which large numbers of one or more species of domestic animals may be kept on the farm more nearly ap-

proximating that to which they are accustomed in nature, permits of the widest latitude for the display and exhibition of those peculiar instinctive traits which form a part of their distinguishing characteristics. With apparently a keen sense for observation and selection, the members of each species or family readily seek out and crave the association of other members of the same species or family and appear perfectly satisfied only when thus associated. Wandering at large and grazing through the pastures or at the drinking pond or stream, they manifest a deep concern for each other, clearly evidencing, however, that the instinct for association is peculiar to them all. They frisk, frolic and gambol with a spirit of delight and gratification seemingly peculiar only to themselves. When for reasons of inability any member or members refuse to share in a general jollification, the very deepest concern is manifested for him. When danger, real or suspected, threatens and an asylum becomes necessary, as by magic, the signal is given and the course taken by one seems to be the choice of all and is persistently and unswervingly followed even when conditions of a most threatening and dangerous character sometimes seem impossible to be overcome.

2. *Stock Farm Conditions Simulate a Natural Condition.*—

The conditions under which animals live in nature have a direct similarity to those on the stock-farm. In the former they enjoy so-called absolute and unrestricted freedom, having imposed upon them, however, the absolute responsibility for their own safety and protection, as well as for the means of sustenance. On the stock-farm, on the other hand, they are subject to these conditions only in a modified form by way of, to a certain extent, restricted freedom; which is compensated for by the means of protection and oversight, as well as a proportion of the means of sustenance regularly provided them.

3. *Opportunities which Constitute the Basis of Original Observation.*—Those whose business brings them into close and frequent contact with farm animals and are sufficiently observant find a large field of opportunities which constitutes the

basis for original observation. They cannot fail to observe the evolutionary modifications brought about by any change of environment, the climatic and geographical variations, change of pasturage, and water, also the imposing characteristic traits of heredity, atavism, temperament, etc. The sum total of these opportunities and observations also constitute the school from which the intelligent stock-owner and breeder learns his first and probably best lessons and from which he soon learns to distinguish the differences between or departure from a normal healthy condition to that state which is characterized as sickness or disease. The peculiar nature of the sickness or disease may and generally does outrange his limit of comprehension, but the manifest symptoms which distinguish the unhealthy from the healthy condition are always more or less apparent to him.

4. *Non-professional Stock-farm Veterinary Practice.*—To the conditions just referred to above are also traceable the great inducements which a large number of stock-owners and breeders seemingly appreciate as falling within their sphere of duty to enter the arena of pathology, therapeutics, etc., under the guise of “non-professional.” In a vast majority of cases the results of such ventures are perhaps only too well known and the bitterness of the experience not soon forgotten by the venturer.

5. *Opportunities for Observation by the Professional Student.*—All the opportunities which present themselves to the mind of the stock-farm owner and breeder are, with still greater possibilities, open to the professional student who is capable of utilizing his powers for observation in a systematic and regular manner, or in a single word, scientifically. From a previous knowledge of the several scientific theories relating to those conditions for which the stock-farm offers the very best field for practical observation, he soon realizes that the seemingly tedious and unpopular, and to some extent useless and burdensome theoretical ideas of the class and lecture room reduce themselves to practical applicability with a charming exactness. He appreciates how nature, with subtle plasticity gradually and with a

definite purpose, moulds and develops into the most graceful adult forms the seemingly ill-shaped and ill-proportioned young. The watchful care and concern of the natural parent for the young, and her evident pleasure in its being can nowhere be so fully appreciated as on the stock-farm. When the conditions calling for the practical application of the principles of medicine and surgery arise, the wide range of difference between the environments of the stable in city or town, and the barn of the farm at once suggests such modifications as would reduce those principles to their very simplest forms. In the absence of the more complete assortment of the city drug store, the simpler and more ordinary articles of domestic use have very often to be called into requisition and with the most charming results. In the absence of the elaborate and scrupulously kept operation table of the city infirmary, a carefully sprinkled cement floor, or continuous antiseptic spray, the carefully regulated light, etc., the stock-farm offers the shade of an overspreading tree, under which bundles of straw may be spread and sprinkled, or even an open lawn covered with sufficient turf, with abundant light from the firmament above, with air sufficiently purified by the sun's rays and warmth as to reduce the number of germs to a minimum. These comparisons refer with directness to the more ordinary cases calling for treatment, but when the more serious conditions, such as an epidemic of contagious and infectious animal diseases, march in or break out upon the field, being communicated either by diseased conditions existing on neighboring or adjoining farms, or introduced through the medium of new acquisitions to the farm, then the plan of warfare has to be modified and changed to meet the special conditions and recourse to isolation, quarantine, preventive inoculation, disinfection, etc., becomes imperative, the success or effectiveness from any or all of these methods being just in proportion to the thoroughness with which said methods are carried out and applied.

6. *The Stock-farm as a Natural Experiment Station.*—The stock-farm managed with intelligence and foresight sufficient to appreciate the changes and variations of conditions as they arise

and the spirit to investigate and endeavor to inquire into the causes which lead up to the changed conditions, the ultimate consideration of what would be the best remedy to apply and the particular methods under which the application may be made, such a farm unquestionably offers the most perfect features of an ideal experiment station. If by recurrence, endemic disease is proven to be permanently established in any particular section of the territory, the particular time of its recurrence, the climatic and atmospheric conditions under which it recurs, the severity with which the periodic outbreaks manifest themselves, the particular grades or species of animals which are more or less susceptible to the invasion, the physical condition which more readily succumbs to the attack, the principal channels or media which facilitate the spread and dissemination of the contagious and infectious principles, and finally, the agents and methods which are most effectual in the control and stamping out of such disease.

The opportunities for engaging in experimental work of this kind on an extended scale by the simplest and yet most effective methods can be found only on the stock-farm, where the professional student, willing and able to grasp and profit by them, finds that the lessons there offered him, constitute a valuable post-graduate course.

MY EXPERIENCE WITH BLACK-LEG VACCINE.

BY M. V. BYERS, V. S., OSCEOLA, NEB.

A Paper read before the Nebraska Veterinary Medical Association, February 21, 1899.

My experience with black-leg vaccine has been somewhat limited. Perhaps some of my brother or fellow practitioners have had more experience in this line than myself. During the months of January and February, 1898, I vaccinated nearly 600 head, ranging in age from six months to two and one-half years of age. During the early part of January, 1898, I was called out to examine some cattle which had been dying of some unknown disease. Upon arriving I found several dead animals,

and upon post-mortem examination I found the characteristic symptoms of black-leg, which are too well known to the profession to give here. In order to be doubly sure of my diagnosis I procured some of the diseased tissue and sent it to Dr. Jones, of Rising City, for microscopic examination and received an answer confirming my diagnosis. This herd consisted of about 150 head. I advised vaccination. The owner had never heard of such a thing, so it was impossible to convince him. He said that if it was nothing worse than black-leg he could cure them; so I said, "Go ahead." I do not know what his treatment consisted of, but I do know he lost about 22 head of nice steers. They kept on dying all winter.

The next herd was about two miles from the first, and I will say the owner was a more sensible man to deal with. He had lost several head. We vaccinated 97 head with first lymph. I will say right here that I have used the double vaccine altogether and think it best. Three died between first and second vaccination; six or eight weeks after the second, two died; none from that time up to this.

Second herd of heifers of 57, two died before vaccination; none during intervals; and none after that. Next herd of 354 head, 12 died prior to vaccination; none during interval; one after complete vaccination. I also vaccinated several smaller herds with no deaths after vaccination. I have always used the Pasteur vaccine, but there may be others just as good.

It will be seen from the above that there were only 3 deaths after complete vaccination out of nearly 600 head, and the disease actually existed in all of those herds prior to vaccination.

Some would ask how many can be vaccinated in a day. I will say that that depends upon the surroundings and the help you have. I vaccinated 354 in less than ten hours, and others can do equally as well if they have the proper assistance.

There are three modes of vaccination: The ear, shoulder and tail. I prefer the latter for several reasons.

I will further state that it is generally believed cattle will not contract the disease after three years of age. I will relate

an instance which occurred in one of the herds. There were about 90 head of cows; very wild, western cows. In separating the young stuff to be driven into another corral to be vaccinated, these cows stampeded and broke through a six-wire fence, and right by this fence lay a carcass of one of the diseased animals. Those cows were all more or less scratched by the wire. They were sold about two days later, and in about two weeks six of them died, as I am told, with all the characteristic symptoms of black-leg. This proves the theory of its being an infectious disease of wounds. I might further be asked if it is safe to vaccinate pregnant heifers. I will say I think it is, as I vaccinated over 60 and not a single abortion followed, to my knowledge.

I will close by saying that I heartily endorse black-leg vaccine where the disease actually exists.

PARALDEHYDE IN VETERINARY PRACTICE.

BY ROBT. S. MACKELLAR, V. S., NEW YORK CITY.

A Paper read before the New York County Veterinary Medical Association, April 5, 1899.

In treating of this drug I wish simply to state a few cases in which we have found it useful and employed it in preference to chloral hydrate, chloroform, ether and other drugs.

First, let us consider what paraldehyde is. It is a body between an alcohol and an ether; a colorless fluid, soluble in ten parts of water, still more soluble in glycerine, and of a disagreeable persistent odor. It is antiseptic and hypnotic and slightly diuretic, according to authorities.

Although it is claimed that its principal action is that of a hypnotic, we find that it is very hard to produce sleep by its use, but it acts principally on the sensory nerves and also slightly on the motor. It is this anæsthetic action that we have made use of, and of which I cite a few cases.

The drug was first recommended to us about two years ago by a fellow practitioner who had used it in the standing operation for castration. By the administration of one ounce of the drug in a gelatine capsule this painful operation was rendered painless or very nearly so.

The first case that we concluded to try with it was one where it was necessary to trephine the sinuses of the head—in a bay gelding, in good condition. Two and one-half ounces of paraldehyde were given in gelatine capsules, and after waiting about fifteen minutes, the operation was performed in the usual manner, two openings being made. The animal did not show the slightest symptoms of pain during the operation, and the only after effects noticeable were a slight dullness and staggering gait when moved, but this all passed off in the course of an hour or so. The second case in which we found it useful was a bad one of fistulous withers in a bay gelding, eight years old, weighing about 1200 pounds. We decided to operate and open up all the sinuses to their bottoms. About three ounces of the drug were administered in the same manner as in the previous case, and the operation proceeded with after waiting fifteen or twenty minutes for the drug to become diffused. At the end of this time the persistent odor of the drug could plainly be detected at each expiration. In this case it was necessary to make an incision about fourteen inches in length and also to scrape the heads of two dorsal vertebræ. The pain of the operation was greatly diminished by the use of the drug, but not entirely removed, as in the previous instance, so that in the next case it was decided to use a larger quantity.

The third case was similar to the preceding one, a gelding, ten years old, and weighing 1400 pounds. In this case we employed about 4½ ounces of the drug. After waiting the usual time the fistulous tract was opened to the bottom and in this case entirely free from pain during the operation.

We have used the drug in several other cases with equally good results, and also have recommended it to one or two other practitioners, who report favorably of its action. We would recommend it favorably in preference to cocaine where it becomes necessary to operate on quite a large surface and the operation lasting some time. The preparation used in the cases cited is prepared by Merck. We hope to hear in the near future of some one else who has given the drug a trial.

CASTRATION OF CRYPTORCHIDS (RIDGLINGS).

BY J. F. BUTTERFIELD, V. S., SOUTH MONTROSE, PA.

Read before the annual meeting of the Pennsylvania State Veterinary Medical Association, March 8, 1899.

The cryptorchid is a malformation in which the testicle, one or both, does not descend into the scrotum. It will be found inside the abdomen, detained in the inguinal canal, or descended to the flank or some obscure situation. The percentage of animals with this irregularity is quite small; probably not more than one-tenth of one per cent. In my experience, I have found it most prevalent in the horse, next in the pig, and quite rare in bovines, having seen but two, and they were flankers. It is quite important that ridgling horses be castrated, because they are more liable to become vicious than regular entire horses.

It is not well to breed from them owing to the hereditary tendency. In Susquehanna County a horse of that character has been used for stock purposes for some years. Quite a percentage of his colts were cryptorchids.

It is only in comparatively recent years that ridgling castrating has been attempted with any degree of success. It is an operation which requires an intimate anatomical knowledge of the parts, both theoretical and practical, especially practical. The operator should know the parts he comes in contact with from the sense of touch, which only comes from practice. He should be able to follow the natural course of the descent of the testicle in making the abdominal openings in the horse to detect the peritoneum when he comes in contact with it, to distinguish the testicle from a loop of the intestine, to separate the vas deferens from the ureters, and not make the sad mistake of removing a kidney for a testicle. He should be a natural mechanic. He should have a cool head and a steady nerve, and be able to invent the best possible plan with the means at hand to overcome the difficulties he may meet, for he will not find it all clear sailing.

I have never used anæsthetics in this operation, but would

recommend an anodyne. A hypodermic injection of morphia, three to five grains, one-half hour before operating. No doubt the anæsthetic would be the more up-to-date idea, but it is difficult to always have an assistant that is skilled in its administration, and then we would have the added danger of anæsthesia.

Prepare the animal for the operation by dieting from twelve to twenty-four hours previous, allowing only bran mash.

To secure the horse in the recumbent position for the removal of the apparently absent member, we use the Conkey harness, preferring a grass plot on a little incline. Lay him with head down the hill, with side uppermost you wish to operate. This causes the abdominal viscera to gravitate forward out of the way, lessening the pressure upon your opening.

Having previously examined the parts in a standing position, now look for the cicatrix if the history of the case says the testicle has been removed; manipulate again for flanker, or inguinal detention, which can most usually be detected now. If a flanker, remove where you find it. If in inguinal canal, make an incision in same place in scrotum as though it were a normal castration, having previously disinfected the skin and hands with the usual bichloride or lysol solutions, and instruments with carbolic or formaldehyde solution. Make the incision large enough to introduce the hand. An operator with a small hand has an advantage. Now tear and stretch the fascia outward from the incision, and with a rotary motion with the hand partially closed, outside the muscles, next to the skin in the direction of the descent of the testicle to the inguinal ring, where you will find the testicle detained in the ring. Bring it to the surface and remove with the ecraseur in the usual manner.

Now, for the abdominal ridgling, you make the same incision and same entrance to the ring as in the detained ring operation. You now pass above the ring two or three inches and break the peritoneum with one finger. Introduce two fingers and usually you will detect the vas deferens right where you break through. Follow out to the testicle and bring it to the surface. Invari-

ably the testicle is small and flabby. Remove with the ecraseur. Should you not be able to locate the vas deferens as described, then enlarge opening into abdomen sufficient to introduce the hand. Pass above the bladder to vesiculæ seminales, follow vas deferens to testicle and bring outside. Until you become accustomed to this operation you will find it a help to introduce one hand into the rectum. It will aid in guiding you to the parts you wish to find. Should it be a double ridgling, do not open both sides, but pass your hand across from first opening and locate by vas deferens as before and bring to the surface, or nearly so, as cord may be a little short. You can bring it up sufficient to pass the chain over it.

Some may ask will not the testicle descend when detained in the inguinal ring. In some cases it does. It is a question, however, whether it will pay the owner the necessary expense and time to wait.

In this operation upon the pig, which we are frequently called upon to perform, I suspend him by the hind legs; open the abdominal cavity about one inch to the right of the penis, making the incision two or three inches long. This will bring into view the bladder and vas deferens, which you trace to the testicle. Remove in the usual manner, and close the opening with three or four stitches, using a full curved needle, engaging skin, muscle and peritoneum in each stitch.

After treatment: Do not let the horse lie down and roll for eighteen hours after the operation. Feed hay sparingly for two days. Should there be much swelling foment with clean warm water, in which use some germicide. Give walking exercise every day after the first day. Should a high temperature present itself, treat with the usual fever remedies. In the pig remove the stitches in ten days.

"I CANNOT BE WITHOUT THE REVIEW: You will find draft for three dollars for subscription from April 1, 1899, to April 1, 1900, for which please send receipt."—*W. H. Curtiss, D. V. S., Marengo, Ill.*

URINARY ANALYSIS.

BY GEORGE JOBSON, V. S., CHICAGO, ILL.

Read before the Annual Meeting of the Pennsylvania State Veterinary Medical Association, March 8, 1899.

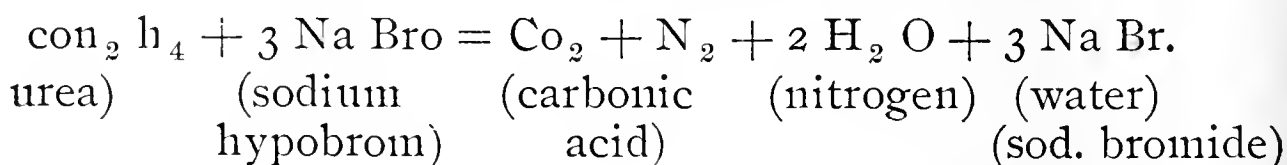
My apology for not presenting a more lengthy paper to the members of this association is a lack of time to prepare one. I will, however, contribute my mite by giving some reliable qualitative tests for some of the most important pathological urinary constituents, as I think urinary analysis should play as important a part in the diagnosis of animal diseases as it does in the human family, and it would no doubt help to clear up the pathology of those diseases which at present are rather obscure to us, if it was more generally adopted by the members of the veterinary profession.

UREA.—*Test No 1.*—Take one ounce of urine and concentrate by boiling to a small bulk, add strong nitric acid and set aside to cool. Crystals of urea nitrate will form and can be seen by the aid of the microscope. They are octahedra lozenge-shaped tablets or hexagons.

Test No. 2 may be used quantitatively and qualitatively. It depends on the power of a solution of sodium hypobromite to evolve nitrogen from urea, and the gas collects in the closed end of the Doremus ureameter and displaces the solution. The tube being marked in per cent., the amount of nitrogen gas registered represents the percentage of urea present in the urine. Normally horses' urine contains from $1\frac{1}{2}$ to $2\frac{1}{2}$ per cent. But this may vary slightly according to the concentration of the urine. In dogs it may be 10 per cent.

To make the solution of sod. hypobrom., keep on hand a 20 per cent. sol. of sod. hydrate. Fill the ureameter with this solution and add 15 drops (1 c.c.) of bromide.

The test is made by drawing up 1 c.c. of urine into the pipette, which is marked. Insert the pipette carefully and press out the urine slowly. The following reaction occurs:



ALBUMIN.—*Test No. 10.*—Acidulate a quantity of urine with a few drops of acetic acid, then add a saturated solution of potassium ferrocyanide. This gives a precipitate when much albumin is present, and produces an opalescence when there is only a trace. This test will show as little albumin as 1 part in 60,000.

Test No. 20.—Pour a small quantity of fuming nitric acid into a test tube and add a little warm urine in such a manner that the urine floats on top. If albumin is present a white zone is formed at the line of demarcation. If the urine is not warmed before making the test, urates may give a similar reaction.

A great many substances besides albumin will react to any test which is used for this substance, as salol or also resins, in the urine. But on addition of an excess of pot. ferrocyanide these precipitates are redissolved. Before testing for albumin urine must be made perfectly clear by filtering, otherwise you will not be able to detect traces.

SUGAR.—*Test No. 11.*—Test Fehling's solution, which is a mixture of copper sulphate, caustic soda and Rochelle salts, by boiling. If it remains clear it is in good condition. Take equal parts of urine and Fehling's solution and raise to the boiling point. A yellowish or reddish precipitate stands for sugar.

Test No 20.—This is probably the most reliable test known for sugar. To 2 drams of urine add the point of a knife full of phenyl hydrazin chloride, and the same amount of sodium acetate crystals; shake thoroughly until dissolved. Then place in a hot-water bath just below boiling point for 30 minutes. Remove test tube and cool the solution under running cold water and examine some of the yellow precipitate with a microscope. If sugar be present yellow needle-like crystals are seen. Before testing for sugar if albumin is present, remove by acidulating with acetic acid, boil and filter.

BLOOD.—To a little tr. guiac. add an excess of peroxide of hydrogen. To this add the suspected urine. A blue color stands for blood.

PUS.—Acidulate a small portion of urine with acetic acid.

Filter through a double filter. Then treat the moist residue on the filter paper with a few drops of tr. guiac., which gives a blue tinge.

PHOSPHATES.—Phosphates are usually found in urine as an amorphous white substance which clears up on addition of acetic acid. Very often neutral or alkaline urine will become cloudy when boiled; this may be due to albumin or phosphates. They may be distinguished by the acetic acid test, which dissolves phosphates but not albumin.

REPORTS OF CASES.

“Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

RUPTURE OF THE INTERNAL ILIAC ARTERY.

By W. J. MARTIN, V. S., Kankakee, Ill.

The patient, a bay mare, aged six years, of the Norman variety, was found at 3 A. M. on March 30, to be in labor. On a casual examination by the owner, he found one fore foot presented, with the other one flexed and turned backward in the vagina. This he readily straightened and brought out with its fellow, but was unable to find any trace of the head. He now desisted from further efforts to deliver the mare and my services were requested by telegraph. Upon my arrival at 11 A. M. I found from the owner's statement that after his manipulation the mare began to strain in a most violent manner, and in a short time she succeeded in forcing out nearly two feet of her rectum. I found the rectum hanging down, cold and of a dark-red color. The mare was lying full length on her side and at intervals straining violently. Upon being assisted by several men she was enabled to rise, where she stood and trembled, with a quick, weak pulse and a very anxious countenance, betokening serious abdominal pain.

I informed the owner that in my opinion the case was hopeless, and that the mare would not live through the ordeal of delivering the colt; but he insisted that I should go ahead and get the colt away.

After administering a stimulant, and returning the prolapsed rectum to its proper position, I attempted to make an examination of the position of the colt, but the mare became so restless

and strained so violently, that it was deemed best to lay her down and administer a small amount of chloroform to quiet her. After this was done, one of the foal's limbs was removed at the shoulder joint, which gave room for the introduction of the hand, when the back of the foal's head could be felt in the left side of the womb. The foal's head was turned backward and the nose rested against its right side. After several arduous attempts, a cord was finally placed around the neck, and the head being then rotated it was drawn up into the passage and delivery was quickly accomplished.

During the interval of securing the foal's head the mare acted quite strong, in spite of the benumbing influence of the chloroform, and at times would strain quite strongly. At no time during the period of removing the foal was there complete chloroform anæsthesia. After removal of the foal and the secundines, the mare had an attack of syncope, from which she was rallied with difficulty. At this time every person who was present thought the syncope to be due to chloroform narcosis and I was somewhat inclined to the same view, although I was unable to account how so small an amount of the drug (nine drachms) could produce such a serious systemic effect. The mare would rally from one fainting spell only to relapse in a few minutes into another one, and in one of these, about 30 minutes after delivery, she quietly died.

Having used chloroform in general practice for sixteen years without any fatal or untoward results, I was much chagrined at the general opinion of the owner and the other persons present that the mare's death was due to chloroform. I, therefore, in justice to myself, asked the owner's permission to hold a post-mortem examination, a request he readily granted.

On opening the abdominal cavity a large amount of clotted arterial blood was seen resting upon and among the superior portion of the intestines and womb, while the lower abdominal cavity was filled with a large amount of blood-colored watery fluid. On searching for the origin of this hæmorrhage, it was found in the internal iliac artery, which was ruptured just below the junction where it leaves the posterior aorta. The rupture was due no doubt to the violent throes of straining in which the animal indulged after the owner had made his first manual examination. The owner was now perfectly satisfied as to the cause of the mare's death when he placed his finger into the ruptured artery.

Thus by the post-mortem was removed the odium cast upon

a drug that has done more to alleviate the pain and sufferings of mankind and animals than any other drug ever discovered by man.

TETANUS IN A MULE—RECOVERY.

By NEWTON G. LE GEAR, V. S., Waco, Texas.

On March 8, 1899, Dr. C. C. Brown, M.D.C., was called to the Cooper Grocery Co. to see a sick mule. Upon reaching the place he found the mule to be suffering from tetanus, with symptoms well marked, and gave a prognosis as unfavorable. After consulting with me upon the case, the carbolic acid treatment was decided upon, more in the way of an experiment than anything else. Gave intratracheally with a hypodermic syringe three times daily the following :

Carbolic acid crystals,	grs. iij
Glycerine pure,	℥ x.
Aquæ,	℥ xv.

This treatment was discontinued at the end of six days, on account of considerable irritation to his neck at the point of inserting the needle, and campho-phenique substituted. Campho-phenique, xmi, was given hypodermically three times daily for four days longer, at the end of which time the mule was pronounced well and fit for duty—making in all ten days from the time treatment was begun.

The use of campho-phenique gave very gratifying results, and as it is non-irritating can be safely used hypodermically. Eserine was used to keep the bowels open.

EXTRA-UTERINE PREGNANCY.

By HERBERT S. PERLEY, D. V. S., Ottawa, Ont.

On April 23d I was asked to examine a mare, twenty-two years old, and give an opinion as to whether she was with foal. Owner stated that she should have had her colt the last of March. The mare presented every appearance of being pregnant and I told owner that she would likely foal in a few days. I saw or heard nothing more of the case till July, when I saw the owner and he informed me that the mare had not had a colt and that although still appearing as if in foal he had decided she was not and was using her at light work.

About the end of September a man drove the mare to my office and asked my opinion as to her condition. Being busy I asked him to bring her again and I would examine her. On October 17th he returned and informed me that the day before

the mare had begun to strain and in about an hour the placenta came away. I made an examination per vagina and found os dilated and made an examination of uterus, which was pretty well contracted. On the floor of uterus and a little to the right I could detect what was evidently the cicatrix of a rupture. I now expressed the opinion that the mare was either suffering from a tumor or else the foetus had dropped down into the abdominal cavity. The abdomen was greatly distended, but nothing could be felt from vagina or rectum. Advised destruction of animal as on account of her age she was of no use. This the owner would not agree to, but promised to let me know how the case ended.

On November 6th he came for me, stating that the mare was straining very hard and that he wished her destroyed. On reaching his farm I found the mare in violent pain and at first refused to move. Examination of uterus revealed it contracting forcibly. I shot her and held a post-mortem. Upon cutting the skin along the median line of the abdomen the first thing noticed was a thick growth of hair protruding through the linea alba and abdominal floor. This proved to be the hair of the foetus, which lay in the left hypogastric and hypochondriac regions. The head was imbedded in the stomach and one eye obliterated. The hair of the head had penetrated the stomach of the mare, as the hair of the back had the abdominal floor. There was a membrane encasing the foetus, to which was attached the umbilical vessels.

The spine was bent on itself and where the shoulder and hip came together on the concave side there was union of the two. Where the limbs came together, that is, where one touched the other, there was also union. The foetus was very large, being apparently as large as it would have been had it been born at the proper time instead of remaining in the dam for seven months and some few days longer than was normal.

All the abdominal organs were crowded out of place and the small intestines were literally wound round and round the limbs of the foetus.

The mare had kept in good condition and done light work, exhibiting no signs of pain or inconvenience until the day before she was destroyed, when the placenta came away. The cicatrix on the uterus proved to be from a longitudinal rupture five and a half inches long from which I decided that the foetus must have dropped down while quite small.

IMMOBILITY IN THE TREATMENT OF OPEN JOINTS.

By W. F. DERR, V. S., Wooster, Ohio.

Subject, a valuable sorrel colt, three years old, that had been turned out that morning into a field. Frightened by a dog it got tangled up in a barbed-wire fence, and in trying to get over it fell down, the wire fastening in such a way as to lay open the shoulder and elbow joints, making a wound extending from the posterior part of the elbow up over the shoulder of about 14 inches, severing some of the flexors at the elbow, the wire actually sawing into the bony structures of the elbow.

At the time of my seeing the animal there was complete loss of the use of the leg and forearm, and by moving the arm you could see into the humero-radial articulation. Now, here is what I would call a very bad case of laceration of skin and muscular tissues, as well as two important joints laid open, the wound at the elbow looking very formidable. After making a careful examination of the case, I thought it best to destroy the animal, considering the injury done, the time and expense involved in the treatment of it. I explained the nature of the case to the owner, that it was almost impossible to hold the parts together, the nature of an open joint, and the locality they were in. After giving the matter careful consideration, he concluded to at least give the case a trial. I then proceeded as follows: I took an ordinary spray pump, such as is used to spray gardens, which I cleansed thoroughly (not having anything with me that I thought large enough for the occasion), and sprayed the wound with iodine and carbolic solution, after first removing some of the lacerated tissues, the spray over the parts merely being a mist. This spraying was kept up while there was a brace being made as in the case related in the March REVIEW, only it was carried over the withers. After having everything ready, put the animal in slings, closed the wound with quill sutures, using small sticks of rattan; dusted the wound well with boracic acid and iodoform, then bandages, beginning in the middle of the metacarpal up to the elbow, with absorbent cotton over the wounds. The bandages were carried around the thorax and neck, and I assure you that it took quite a few yards of bandages to do all this.

After I had the parts well secured with bandages, I applied the brace and fastened it with some bandages to the limb. The animal remained very quiet, but I still thought it best to have a man stay with it continually, at least the first twenty-four hours, which was done. Next day the general appearance of the

animal was good ; temperature and pulse had increased some, for which it received some febrifuges, diuretics and laxatives ; the bandages had loosened around the parts, but not enough to again remove them. I left the wound alone for two days, at which time there was a discharge of serum, so I thought best to dress the wound. I prepared myself with new bandages, the same solution and the various dressings needed, then took off all the bandages.

The wound was looking as well as could be expected, with considerable serum and coagulated synovia surrounding it. At the elbow there were some of the tissues sloughing, which was removed with scissors. I then applied the spray for fully ten minutes, the wound having gaped open some. I again dusted it thoroughly with boracic acid and iodoform and closed as before. I again left it closed for two days, at which time I dressed as before, using plenty of absorbent cotton. At the end of twelve days some of the sutures commenced to give away, the wounds having completely filled up with granulations. At the end of fourteen days the colt was removed from the slings, having become very tired at this time.

At the end of twenty days the wounds were filled with granulations, so as to need some astringents.

I saw the case again in a month, when the wound was all healed, leaving but small cicatrices, and seemingly as sound as ever.

In this case I think the recovery was altogether due to the immobility of the limb.

PICRIC ACID IN THE TREATMENT OF CANCER.

By FRANCIS ABE E, V. S., Quincy, Mass.

Was called to a valuable (?) stallion, Hajah, for lameness about two years ago. His owner purchased him lame three years ago this May from a dealer, with the story that the horse came from Kentucky a year before with a sore in his foot where a stub had penetrated. The dealer expected to cure it, and had tried everything ; bichloride worked the best. I diagnosed a bad case of canker. Gave no encouragement, as books say almost useless to treat when wall is affected, the whole sole wall and bars being undermined. At first I used bichloride. It would progress well until a horn had grown and then come to explore it was all undermined. To say it was discouraging, did not half express it. I then tried the preparation recommended by Finlay Dun, of cupric sulph., ferri sulph., zinc

sulph., ac. carbol. and petroleum. That worked better, but when it seemed the foot was almost ready for a shoe the canker broke out at the coronet; the whole wall almost was separated. In the REVIEW, under "Italian Review," I saw picric acid recommended to stimulate growth of skin. An idea struck me, for I was familiar with the acid, and I added this to the Dun mixture. The hoof at once made a steady recovery. The acid hardened the hoof, killed the vegetable (?) growth or pus and now the horse has a whole foot and a shoe on it after a year and a half's treatment by me, and the Lord only knows how much longer by other people. You will see by the books that there are almost as many remedies for that as for consumption and that they say that what will work in one case will not work in another. I tried most all of them. Now, here is another to add to that long list.

REMOVAL OF A CAULKBOIL BY LIGATURE.

By J. A. McCrANK, Plattsburgh, N. Y.

A gentleman's driving mare developed a large caulkboil, which became an annoyance to her owner. He used many receipts for its removal, but to no purpose. He asked me to remove it by some means. I tried the elastic ligature as mentioned by Dr. J. C. Meyer, Vol. XVIII, page 501, of the REVIEW, and on the tenth day a tumor weighing four and one-half pounds was removed and a smooth surface remained, which healed beautifully in due time. Now, this case may not be of any interest to many of the readers of the REVIEW, but there are a few young brothers of mine who will be glad to know how I overcame my difficulty. I may say the operation is simple and was entirely satisfactory to me.

TWO CASES OF AMPUTATION OF THE UTERUS.

By D. D. KEELER, V. S., Salem, Oregon.

I was called on January 9, 1899, to Lincoln, six miles down the river, to see a cow suffering from prolapsus of the uterus; the cow was medium sized, half Jersey and half Roan Durham; had dropped her calf three days previous, at which time the prolapsus occurred. A neighbor having some experience with cows was called in the first day and returned the womb, but on the following morning she was found with uterus again protruding. I reached there the following afternoon and found her in very bad shape; womb lacerated, badly swollen and blackened. I could not return it, and decided on ligating it:

After putting the cord around at the breach of the womb, drawing and tying it very tightly, I excised the parts sufficiently back of the string to leave it holding well. Left some fever mixtures to be given three times a day and went home. She has completely recovered and is now giving two and one-fourth to two and one-half gallons milk at a milking.

Was called to see a Cotswold ewe on the second day after prolapsus of the uterus had occurred. Found the womb lacerated and badly swollen, having gotten among rosebriars. I could not return it, so decided to ligate it and take it off.

I passed the cord around about half the way along the vaginal canal from the breach of the womb, cording and tying it very tightly, cutting it off, giving cord plenty of hold. Left some fever mixtures to be given. Two days after my patient died. It had fine grazing. The cow had but little grass, but was well cared for otherwise in having plenty of dry food.

Now, will some one of the many readers of the valuable REVIEW tell me why I did not succeed in the second operation?

PUNCTURED WOUNDS OF THE FEET.

By FRANCIS ABELE, V. S., Quincy, Mass.

Some little time ago I signed a petition to have all blacksmiths in this State pass an examination before they could practice here.

When they get round to it I want them to start on a local shoer here first, before he does any more damage.

Case No. One.—Horse lame; had a rag around his ankle; would bear no weight, though only a few hours before had been on a long trip. Located lameness at outside quarter of foot. Drew each nail separately; found a number of nails, wet with pus, driven into sensitive wall because horny wall was broken away.

Drained it and fomented. Recovery was rapid.

Case No. Two.—Horse lame; lower portion of leg swelled and hot; no weight borne. Lameness on outside quarter; wall broken away. Pulled nails separately. Found a number of nails wet with pus full distance. Tried to drain whole length. Pus broke out above hoof. Blacksmith visited and threw nails outdoors; told owner I would ruin the horse's foot. Owner replied in effect as to impossibility of spoiling a rotten egg. Horse recovered, but has to wear a bar shoe on hind foot pending the growth of more hoof, where I cut.

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By Prof. OLOF SCHWARZKOPF, Flushing, N. Y.

A NEW TREATMENT OF PURPURA HÆMORRHAGICA.—About a year ago Prof. Dickerhoff announced a series of experiments with *argentum colloidal crede*, in the treatment of this disease, the results of which appeared exceedingly favorable. This remedy, manufactured by Heyden, in Radebeul by Dresden, has since been tried in practice, and veterinarian P. Meisseur reports three interesting cases of recovery by its use. The first case relates to a horse which had fairly recovered from influenza, when on November 16 he was found suffering with *purpura hæmorrhagica*. Meissuer first applied intratracheal injection of Lugol's solution (iodide of potass.) with bathing of the swollen parts with Brown's mixture, but the horse became worse, and on November 20 showed a pitiable appearance from great emaciation and gangrene of the skin. M. telegraphed for the new remedy and on the next day gave an intravenous injection of 0.5 gramm of *argentum crede* and 50 gramms distilled water, repeating within two hours. On November 22 he found the horse greatly improved, especially the swellings having diminished, and he applied a third injection. On the next day, two days after first injection, M. found the horse on the way to recovery, the swellings of the legs having almost entirely disappeared, the swelling of the head remaining latest. The hæmorrhagic nasal discharge was changed to a clear mucous discharge, and the petechiæ had entirely disappeared. He then turned his attention towards the treatment of the complications and on December 5 the horse was put to light use. The second case is that of a heavy Belgian horse which was suffering from croupous pneumonia, and on December 3 developed *purpura hæmorrhagica*. The sheath was so enormously swollen that it almost touched the ground. M. applied two injections of *argentum crede* on that day, one injection on December 4, and on December 5 he found the horse quite free from the more pronounced symptoms of *purpura*, and was hereafter mainly treated for a severe cough and copious nasal discharge, and on December 11 was considered cured. The third case was a Shire filly, which had been suffering from strangles, and on February 7 showed first symptoms of *purpura*

hæmorrhagica. Two intravenous injections of argenti crede were given on that day and had to be continued with one injection daily up to February 11, the next day the filly appearing as cured. Another case is reported by Veterinarian Schönhäfer, which also resulted in a quick and complete recovery.

A NOVEL METHOD OF THROWING HORSES.—Prof. Beyer reports trying a throwing method by Count Hurnbrandt, a German horse-breeder. A strong surcingle is fastened around the chest and protected from slipping forward by a crupper and a leather strap thrown over the haunches and connected with the surcingle. A strong halter is applied to the head, and on the rings on either side are fastened ropes which are then pulled through side rings of the surcingle. The rope is extended forward, and one man, standing two or three yards in front of the horse, gradually pulls the ropes, which bring the horse's head slowly towards the sternum. The horse will throw his weight more and more on the hind-quarters, swaying backwards and forwards and finally lies down slowly and remains lying as if hypnotized. According to which side the head is more strongly pulled, the horse will lie down either on the left or right side. This method seems to be especially adapted in cases of vicious horses which object to the fastening of hobbles.

EXPERIMENTS WITH VASAGEN PREPARATIONS.—The drug firm of E. T. Pearson, Hamburg, has brought into the market the so-called vasagens, which are apt to supplant the use of vaseline, etc., as bases for ointments. The vasagens are in the main vaselines charged with oxygen, thus rendering possible an emulsion with water; they are fluid, of remarkable penetrating and absorption powers, devoid of irritating effects, and can easily be rubbed into the skin or mucous membranes, and injected into fistulæ or even be given internally. Veterinarian C. Augustine reports experiments with three kinds of vasagen preparations, of a 15 per cent. creolin vasagen, a 1.5 per cent. iodoform vasagen, and a 6 per cent. iodine vasagen. A. used iodoform vasagen in a penetrating wound on the knee of a cow, which was of old standing and had affected the general condition of the animal in such degree that she ceased eating and giving milk. The wound did not respond well to the ordinary methods of treatment. Iodoform vasagen was applied three times daily with a brush and the wound loosely covered with a linen cloth. In nine days the wound was entirely healed, leaving no swelling nor thickening whatever. A. also used iodo-

form vasagen as an injection in three cases of fistulæ, in one of which wound-infection had already set in with high fever. The daily injections were followed by introducing a tampon saturated with iodoform vasagen, in both cases a complete recovery being effected in 14 and 20 days respectively. He also used iodoform vasagen in two cases where parts of the horny sole of horses had to be amputated, a thin layer of new, healthy horn appearing within three to five days. In several cases of vaginal injuries from parturition of cows A. used creolin vasagen. In one case gangrene had set in. The wounds rapidly changed to a healthy appearance, and the cow never showed any straining after the application of the remedy, which proved that it is non-irritant. Interesting is a case of chronic lymphangitis (three years old) of a horse, the extremity being swollen from the coronary band up to two hands above the hock. All previous treatment had resulted only in temporary relief without cure. A. applied three times daily iodine vasagen. In two days appeared several soft patches near the fetlock joint. These were opened and a large quantity of a serous fluid of a reddish color emptied. In the course of a continued application with this remedy during four weeks, the skin treated in such manner was continually covered with drop-like effusions of a serous fluid, resulting in almost complete recovery after such long standing.

STATISTICS OF SCHMIDT'S TREATMENT OF MILK FEVER.—In addition to the statistical report of Dr. Nevermann on the results of the iodide of potass. treatment of milk fever, as published in the March issue of the REVIEW, V. Jensen now gives the results of treatment by 146 veterinarians, representing 1701 cases of this disease. From these statistics it appears that milk fever mostly befalls cows between the ages of 6 and 8 years, and that the disease most frequently manifests itself 10 to 20 hours after parturition. Of the 1701 cases treated, 1407 (82.5 per cent.) were cured, 209 cows were slaughtered, 43 died of traumatic pneumonia, and 58 cases developed mastitis. Of the cows that recovered two-thirds of the number stood up within 6 to 18 hours after beginning of treatment. The report states that in about one-half of the cases the treatment could only be applied rather late in the development of the disease, yet the result as a whole is most favorable. Jensen concludes, as did Nevermann, that iodide of potass. has proven itself as a specific against milk fever, and that the new treatment constitutes a boon for the country practitioner.

FRENCH REVIEW.

THE OLD VETERINARY SCHOOL OF LIMOGES.—In the December *Revue Veterinaire de Toulouse*, Mr. A. Leroux publishes an interesting article upon the establishment of this school in 1765, posterior, therefore, to that founded by Bourgelot, in Lyon, but anterior to the opening of the Alfort School. Although it was supported by the Government, it met with little success and closed its doors in 1768.

NECROSIS OF THE HYOID BONE, SEQUELÆ OF STRANGLES [By MM. Cuillé and Sendrail].—A young horse which had strangles had an abscess of the intermaxillary space. It was opened and a favorable prognosis given. Nevertheless, the abscess did not close and a fistulous tract remained, which proved rebellious to all treatment. On being probed, the instrument struck the hyoid. A free incision was made and two hard little bony masses, the size of a small hazel nut, were removed. The horse died two days after with gangrenous pneumonia from foreign bodies. The hyoid bone when removed was found to be the seat of extensive necrosis of the body. There were three cavities at the base of each of the small branches and the lingual appendix, two of which were empty, the third containing two small sequestrums as big as a pea, which would have sloughed of themselves had the horse survived.—(*Revue Veterin.*)

LYMPHADEMA IN COWS [By Mr. Queyron].—A cow, having been treated two years previously for a pulmonary affection, presented a few days since the following symptoms: swelling of the neck, venous pulse to the jugulars, cardiac arrhythmia, cough and tympanites. These symptoms rapidly become more marked; the dyspnoea is very severe, the swelling extends to the dewlap and then the extremities. The animal is sold to the butcher. At the post-mortem, the lymphatic glands of the thorax are largely hypertrophied; one, as big as a man's fist, presses on the œsophagus, the blood vessels and the nerves. It was that swollen gland which gave rise to the symptoms described. At first the case was supposed to be one of ganglionic tuberculosis, but closer observation of the lesions and their histological examination showed them to be lymphadema.—(*Prog. Veterin.*)

UPON THE CASTRATION OF COWS [By Mr. Revouy].—From a series of observations that the author records in the *Journal de Zootechnie* it results that (1) the operation ought to be performed only when in good health and in good hygienic con-

dition ; (2) that ovariectomy performed on tuberculous cows may be complicated with peritonitis, metro-peritonitis, sometimes with nymphomania, even when the cow is suffering with this disease before being operated upon ; (3) that it is indicated to resort to the tuberculin test before operation ; (4) that the symptoms of nymphomania may continue in a tuberculous cow after ovariectomy ; (5) that the castration performed on a sound cow has a positive influence on the recovery from nymphomania, upon the increase of the milk especially in nymphomaniac animals, upon the length of the lactation, upon the tendency to fattening ; (6) that it probably increases the richness and quality of the milk and improves it by rendering it more pleasant to the taste and more uniform in its composition ; (7) that the milk secretion lasts for at least one year in the same amount as it was at the time of spaying. If it varies, it is due to other causes, such as change of season, or diet, etc. ; (8) that it is advantageous to perform it during the period of increase of the milk secretion or when it is at its maximum.

PARALYSIS OF THE TAIL AND OF THE SPHINCTERS IN A MARE [*By Mr. Raymond*].—With the exception of an attack of strangles, a mare has never been sick. Hired by a gentleman from a breeder for his use, she became unfit for work by the gradual development of a series of symptoms which in some six months assume the following aspect: Quite large œdema around the sphincters, which are swollen, prominent and drooping; anus elliptical in form, prominent but flabby; vulva reduced in height, open, exposing the mucous membrane and the clitoris to view; tail dropping, inert and entirely unusable, it hangs between the legs; its skin, muscles and articulations are not the seat of pain; the anæsthesia of the skin extends to the perineum and part of the croup; the mucous membrane of the vulva and rectum are no longer sensitive to the touch; rectum full of excrement, its muscular coat does not react to rectal exploration; on the croup, at a level with the summit of the sacral vertebræ, there is a circular swelling, in shape of a flattened cone, slightly œdematous, excessively painful; on each side of it, the croup is also the seat of excessive hyperæsthesia. Rectal examination reveals nothing abnormal. The animal walks naturally, but in trotting is stiff behind. Placed under treatment she improved some, but ultimately died of colic. At the post-mortem nothing abnormal was found except on the bladder. Its walls were four times their normal thickness, its mucous membrane thickened, bosselated, purplish and covered

with yellowish sticky covering. A large mass as big as two fists filled the cavity of the bladder. The cord and the tail of the horse were examined by Prof. Cadéac, who found "that the cord, on a level with the sacral pairs, presented an enlargement in the form of a tumor which must have filled the entire rachidian canal. The cord was dense, firm, hard, fibrous, looking like a fibroma developed in the medullary canal. In front of this tumor the cord was softer and more anteriorly resumed its healthy appearance. The case was for Prof. Cadéac a clinical type of sclerosis of the cauda equina.—(*Journ. de Zootech.*)

INTESTINAL OBSTRUCTION IN A MARE—TAXIS AFTER PUNCTURE OF THE VAGINA—RECOVERY [*By M. Audebert*].—This animal was taken with colic, due to intestinal obstruction, which lasted for five days and failed to be relieved by all kinds of treatment, blood-letting, injections of pilocarpine, glycerine injection, frictions of turpentine and even the injection of 4 c.c. of a solution of chloride of barium, which had previously given some excellent results to the author. Considering the animal lost, the owner gave it to the author, who thought to resort to vaginal puncture to reach the obstruction. The vulva and vagina were disinfected, and with a bistoury caché the vagina opened as for ovariectomy. With the hand introduced into the abdominal cavity, the floating colon was felt and a torsion of its circumvolutions was felt. At all hazards, the intestinal mass was pushed about, pressure was made upon the hard fæces which were collected in it, the twist of the colon became untied and the obstructive collection gradually pressed into the rectum. A second dose of barium brought an abundant evacuation. After a few days of careful diet, the animal returned to work.

ITALIAN REVIEW.

PHALANGEAL EXOSTOSIS [*By M. Bamba and Bobbia*].—According to the authors, ringbones are due to four principal morbid processes: (1) dry deformans arthritis; (2) periostitis, due to a sprain; (3) periostitis due to traumatism or wounds by extension to the periosteum of the inflammation existing on the skin or in the subcutaneous tissue of the phalanges; (4) rachitic diathesis. The prognoses of these different forms vary according to causes: the first are difficult to relieve; those due to periostitis may disappear by removal of the original cause, the last are also amenable to treatment. A preventive treatment consists in proper shoeing. The curative treatment varies with

the form of the disease. Neurotomy is indicated when the lameness prevents the horse from working—blisters and ointments of biniodide of mercury or deep-point cauterization, according to the length of standing of the exostosis. Plantar neurotomy finds its application when the lameness is mechanical. Fissures made in the length of the walls of the foot will give relief in cases of side bones.—(*Il Veter. di Compag.*)

MUSCULAR RHEUMATISM [*By Umberto de Mia*].—The author relates cases of chronic muscular rheumatism which he has treated by intramuscular injections of solution of veratrine and arecoline and obtained good results in cases of two months' standing. The first two days he injected a solution of veratrine, gr. 06 in 4 grams of alcohol and distilled water. Improvement was noticed on the third day—the dose of veratrine was increased on that day to gram .10—and to 0.12 centig. on the fourth and to 0.15 centig. on the fifth. The next day recovery was complete. In other cases he had to raise the dose to 30 centigrammes. In another case he resorted to bromhydrate of arecoline, 8 centigrammes in 4 grammes of water, with perfect success.—(*Il Nuovo Ercolani*.)

RED ECZEMA OF DOG.—Eppinger says that after having tried all therapeutic methods without success, he has given them up and now gives no treatment, but subinits his patients to a meat diet entirely. In two or three weeks they all get well. Prof. Marcone, of the Veterinary School of Naples, treats with simple hygienic care of the skin; tepid baths of starched water, alkaline soap or again by rubbing with a coarse brush to stimulate the action of the skin, and in cases of chronic manifestations promotes a slight hyperhæmia. The dogs receive a milk diet entirely. Milk taken in place of meat is sometimes found very advantageous.—(*La Riforma Veter.*)

SUBCUTANEOUS INJECTIONS OF ATROPINE AND MORPHIA IN RHEUMATOID LAMENESS OF THE SHOULDER [*By Prof. A. Baldoni*].—After a long and carefully made record of the experiments made in the treatment of shoulder lameness by rheumatism and of the local effects produced by the injections, the author records a few cases where he has been successful in relieving lameness existing for various lengths of time. His conclusions are that while there are sometimes some local effects which may occur, those are not of serious nature and not deserving the severe criticism that this form of treatment has received at the hands of some German practitioners. While evidently benefits cannot be expected in all and every case, yet

it has proved with him most advantageous in acute and chronic rheumatism when every other form of treatment had failed.—(*Clinica Vet.*)

TREATMENT OF SALIVARY FISTULA WITH ETHYLIC ALCOHOL.—In 1849 Haubiver recommended the injection of liquor ammonia to arrest the salivary secretion, but the results were not satisfactory. Later on Pallerini advocated the use of diluted tincture of iodine. He claimed to have good results with it, but they were not confirmed by others. Prof. Bassi finally instead of those resorted to ethylic alcohol, and all his cases were successful. In a recent case a colt was first treated by creoline without result. An injection of 15 grammes of ethylic alcohol which had probably not entered the duct of Steno failed also. A second injection was more satisfactory. The next day after the injection, the parotid region was swollen, warm and painful, the flow of saliva had almost entirely stopped at the fistulous opening. A few days after, the inflammatory manifestations having subsided, the wound healed and in a short time recovery was completed. In an experiment made to determine the effect of the alcohol on the glandular tissue, it was found that the gland which had been treated had lost size and weight, while it weighed but 85 grammes, the sound weighed 200.—(*La Riforma Veter.*)

COMMENCEMENT EXERCISES.

M'KILLIP VETERINARY COLLEGE.

The third annual commencement exercises of this school occurred March 13, at 8 P. M., in the college auditorium, 1639 Wabash Avenue. The invocation was made by Rev. E. C. Snyder, which was followed by a baccalaureate address by Mr. Clarence Park Johnson. J. Harry Danforth presented the class history, Lawrence W. Bowlus the prophecy, and Wm. J. Patterson the class poem. The presentation of prizes followed, being delivered by Prof. J. M. Wright.

President McKillip then conferred the diploma of the college upon the following fourteen graduates: L. Edgar Almony, Lawrence W. Bowlus, Joel E. Cloud, D. V. S., Thomas Madison Doran, J. H. Danforth, Charles H. Howard, Walter G. Huyett, V. S., Clyde S. Hess, Fred E. Jones, Robert Jay, Edward H. Lawley, V. S., Wm. J. Patterson, Charles Parke, Otto Schukat, John A. Sloan, B. Sc., George P. Statter, V. S., Grant A. Wehr, V. S., Willard E. Wight, V. S.

After a valedictory by Clyde S. Hess, of the graduating class, benediction was pronounced.

NEW YORK COLLEGE OF VETERINARY SURGEONS.

There were no formal graduating exercises or supper given this year at the New York College of Veterinary Surgeons. The following students received diplomas; William Malcolm Mackellar, Francis C. Edmonds; Robert H. Twitty, D. V. S., George Byron Morse, M. D., Ph. G., Alphonso J. Doncourt, Wallace M. Gill, William P. Grimes and Stephen J. Hanlon.

William Malcolm Mackellar was awarded the gold medal for the best senior examination, and the pocket-case of instruments for the best practical examination. Mr. Daniel J. Mangan, a second year student, received a hypodermic syringe for the best examination in materia medica, and Mr. Charles Joseph Jones, a first year student, received the silver medal for the best junior examination.

UNITED STATES COLLEGE OF VETERINARY SURGEONS.

The commencement exercises of this college took place in the lecture hall of the college. Dr. C. Barnwell Robinson opened the exercises with an address, after which he conferred the degree of doctor of veterinary science upon the following graduates: E. P. Flower, New Orleans, La.; J. G. Ferneyhough, Blacksburgh, Va.; C. E. Uber, Glencarlyn, Va. The degree of fellowship was conferred upon Professors H. D. Hanson, D. V. S., of New York City, and Otto G. Noack, veterinarian, of Reading, Pa.

The prizes were then awarded as follows: Mr. E. Pegram Flower, of New Orleans, La., the "Hinkley prize" for general proficiency, and the Gheen prize for practice of medicine and surgery; Mr. Frank B. Berger, of Baltimore, Md., the gold medal presented by Dr. Wm. E. Yetton for proficiency in dentistry; Mr. J. G. Ferneyhough, the second prize for general proficiency, and Mr. Frank F. Feagons, of West Virginia, the Kaufmann prize, a library of books, for best junior examination.

The trustees were represented by Prof. Geo. A. Prevost, who made an interesting address. Mr. Flower, the valedictorian of the class of '99, delivered an address which was received with great applause. This was responded to by Prof. Robert S. Lamb, M. D., representing the faculty. Prof. W. A. Hedrick, Ph. D., presented the humorous side of the problems confronting the students in the career presented by veterinary science.

ONTARIO VETERINARY COLLEGE.

The closing exercises of this college were held in the college building, Temperance Street, Toronto, Canada, March 23, Principal Smith occupying the chair. The following graduates received the diploma of the college: Victor J. André, St. Genevieve, Mo., U. S.; H. W. Carley Baker, London, Eng.; John H. Black, Toronto; J. Alex. S. Berryman, St. John, N. B.; John W. Corrigan, Oswego, N. Y.; C. J. Donnelly, Orillia; Fred. B. Davidson, Glencoe; Wilfred J. R. Fowler, Seaforth; Charles T. Frerg, Warwick, Rhode Island; John J. Giblin, Blackstone, Mass.; Wesley M. Goff, Lewiston, Maine; William J. Hennessey, Worcester, Mass.; Arthur Hobbs, Carlisle, England; Duncan A. Irvine, Dalkeith; George Jerome, Rapid River, Mich.; Fred. Clee Jones, Birmingham England; Arthur E. Joslin, Adrian, Mich.; Lewis B. Judson, Bethel, Conn.; W. Luther Jones, Edgefield, South Carolina; Harvey F. Kaufman, Hegins, Pa.; Joseph King, Brice, Ohio; Thomas J. Kirwan, Auburn, N. Y.; William A. Kuhns, Boston, Mass.; Charlie A. Locke, Trilly, N. Y.; John McDougall, Ralplton, Man.; James P. McVicar, Petrolea; John M. Mitchell, Morristown, New Jersey; W. H. Murphy, Jr., Brighton, Mass.; Charles L. Manning, Grand Ledge, Mich.; Patrick H. Morin, Port Colborne; F. J. Neff, Long Glade, Virginia; Jacob F. Olweller, Elizabethtown, Pa.; Herbert J. Pugsley, Central Cambridge, N. B.; John W. Purdy, Oliver, nt.; Howard O. Ramsey, Merle, Cal.; Ulysses S. Richards, Lowell, Mass.; Albert J. Roll, Natrona, Pa.; William L. Rundle, Chapman Quarries, Pa.; John Russell, Saginaw, Mich.; John A. Scott, Grand Rapids, Mich.; J. Lee Shorey, Hoosick Falls, N. Y.; John E. Sommer, Buffalo, N. Y.; W. A. Sproule, Boissevain, Man.; J. M. Sewell, Bunker Hill, Ill.; Edward M. Saigeon, Lapeer, Mich.; William Benj. Wentzell, Amherst, Mass.; James M. Young, Petrolea.

CORRESPONDENCE.

LEGISLATION IN ILLINOIS.

CHICAGO, April 14, 1899.

Editor American Veterinary Review:

DEAR SIR:—The veterinarians of Illinois certainly have reasons to regret the onslaught made on their veterinary bill by the REVIEW in the editorial pages of the April number. Is it not a pity that the REVIEW should attempt to deal such a blow just on the verge of passing a veterinary bill for our State?

The bill, so unmercifully scored, has been officially endorsed by The Chicago Veterinary Society, The Illinois Veterinary Medical Association and The Illinois Veterinary Medical and Surgical Association. It was thoroughly digested and considered, and while all agree that a more stringent measure would be of greater benefit to the graduate veterinarians of the State, it was also conceded that no other measure could pass an Illinois legislature at present. The various sections were discussed and fairly considered, and Sec. 4, which seems to irritate the REVIEW editor so badly, was not overlooked. To say that this measure is "audacious," and that Sec. 4 or any other section will be used as a means of admitting everybody or anybody in the veterinary profession who "has the price of the fees," is certainly a very violent supposition on the part of the REVIEW editor. Imagine, if you can, three veterinary examiners, three live stock commissioners and their secretary, "putting their heads together" for the dishonorable purpose of admitting persons into the veterinary ranks who are unqualified, in order to secure a small fee. Such an assertion is really cruel and unjust. Let us hope the worthy editor was only jesting.

Sec. 4 does provide for an examination of any one who wishes to apply for the same precisely as our medical laws provide. Yet during twenty years under this law it has never been abused nor has any person been admitted to practice of medicine who is not worthy of the honor. In including this section we have acted on the supposition that the veterinarians of Illinois are as honest as their medical brothers, and will see to it that only qualified men enter the practice in the future. Are we not justified in placing our confidence in three veterinary examiners, or are we to act on the supposition that all men are dishonest?

The Illinois veterinary bill is evidently misunderstood by the REVIEW editor. The object of the bill is to place the veterinarians under control of the Board of Live Stock Commissioners precisely as the medical practitioners are under the jurisdiction of the State Board of Health.

Now, if our Board of Examiners, the State Board of Live Stock Commissioners and their secretary (seven in all) are dishonest, dishonorable, mercenary shysters, then the Illinois law is indeed a bad one, and the REVIEW's deductions are logical. But, on the other hand, if a majority of them are even fairly honest, the veterinarians of Illinois may justly congratulate themselves on having the best law yet passed by any State, in-

cluding New York. Let us suppose that occasionally some non-graduate applies for a license. He, like others, will be required to pass an examination in chemistry, anatomy, physiology, pathology, meat inspection, bacteriology, surgery, materia medica, practice of medicine, and any other branches the board may designate. Should he be found qualified, I say, "Let him in." The REVIEW editor will doubtless say, "Turn him out." On this point we shall probably always differ.

It must be understood that Illinois has no State Veterinary College, so any measure without such a clause would be regarded by legislators as an enactment to enhance the interests of the private colleges in Chicago. The REVIEW editor evidently did not think of this. Besides, in canvassing the legislature we found it would be impossible to pass a bill that did not recognize the non-graduate practitioners, nor one that created a new board, nor one that provided for any special course of study, or did not give equality to all persons, irrespective of their particular kind of college training.

During the present legislature, thus far, all educational measures—The Harper Bill, the Medical Bill, the Pharmacists Bill—were "turned down." The exception is the Veterinary Bill, which has gone through the necessary steps unopposed, which certainly shows the foresight of its promoters.

I only ask the REVIEW to be fair, and withhold judgment until the "audacity" growing out of this measure becomes a reality instead of a wild suspicion.

As to the State Veterinarian of Illinois, the REVIEW continually makes the assertion that he is a "political creature," without even the rudiments of an education. I do not profess to understand what is meant by "political creature," but assure the REVIEW editor that the latter part of the statement would be very difficult to prove and would be refuted by any competent judge. Would it not be better for the REVIEW to attack his official acts, rather than simply surmise that he is a bad man without quality, and then continually preface every reference to him with adjectives to suit the suspicion. The facts in the case are that Dr. Lovejoy has been a great disappointment to those who have attacked him, because in all his work he has shown no evidence of incapacity or deficiency which was predicted, but, on the contrary, has won the universal praise of all just and fair-minded men who have had the opportunity to observe his doings.

I do not wish to defend empiricism nor to endorse the ap-

pointment of non-graduate veterinarians to official positions, but I do wish to go on record as stating that the present State Veterinarian of Illinois is worthy of the position he has so creditably filled during the past two and one-half years.

Very sincerely yours,
L. A. MERILLAT.

STATE VETERINARY LAWS AND STATE VETERINARIANS.

LINCOLN, NEB., April 6, 1899

Editors American Veterinary Review:

MY DEAR SIRs:—Kindly permit me to say a few words with regard to veterinary legislation and the State Board of Health.

It is a noticeable fact that almost every legislator in his respective State is called upon to enact laws relating to veterinary and sanitary questions. These laws are year by year being more rapidly enforced. The boards are asking for more appropriations, which is just. And it is a surprising fact that in some States the Legislature is entirely ignorant of the amount of good that this State work is doing. If these State legislators were asked to appropriate the minimum sum for a State Board of Health to which the veterinary department is connected, and especially veterinary sanitation, many of them would invariably ridicule the veterinary services; but if these men were acquainted with the losses that occur through lack of such services and with the good that veterinarians can do their respective States, they would certainly vote for appropriation. For example, the State Legislature of California is now asked to enact some laws which if passed will be the best laws in the United States, in regard to this particular subject; and these laws would probably never have been passed in that State had not the farmers and the stock-raisers of the State been thoroughly frightened by the State becoming infected with Southern cattle ticks, which caused all the other States to quarantine against it. This has opened the eyes of the people, and to-day they are asking for protection. Minnesota has, I believe, the most conservative law in the Union in regard to this subject and one of the best men to enforce the State law. This can be clearly shown by the way they have handled glanders and by the way they have handled the quarantine system; and they have given other States something to go by. This question that is now being so vigorously taken up in Minnesota will no doubt be taken up in the future by other States but, as I have intimated, it will take time for the Legislature in other States to be taught the lesson that the State of

Minnesota has already learned. There are many other States that probably would take this matter up, but they cannot secure the support of their legislators and it is only hoped that Minnesota will give us more of an example in the future and that she will not be cramped for funds, but can vigorously show us what can be done in the way of quarantine and the eradication of contagious diseases.

Every State veterinarian in other States of the Union should be part of the State Board of Health, and should work in his respective State to secure that kind of legislation that will enable him to be a part of the State Board of Health and that will secure in the near future uniform laws in this direction. I only hope that it may be possible to secure laws in the direction of quarantine and investigation of imported stock, all to be uniform throughout the Union, and I believe that by the State boards having a veterinarian connected with them that it can very easily be perfected. I hope that the State of Nebraska, which is following up the laws of the State of Minnesota, will succeed in its law that is now before this Legislature, and that it will be as successful as that State in eradicating disease from its borders.

Very truly yours,

A. T. PETERS, D. V. M.

OBITUARY.

RICHARD KAY, M. D., D. V. S.—On Sunday evening, April 2, at his residence, 371 West 35th Street, New York City, this well-known and esteemed veterinarian died from heart-failure, induced by gastro-enteritis following an attack of the grip. The deceased was born in England about fifty-five years ago, where he learned the trade of cabinet-making, but on emigrating to America engaged in the cattle business. Dr. W. D. Critcherson, of New York, who was an intimate friend of Dr. Kay for many years, informs us that through frequent exchange of confidences he learned the following facts in reference to his history prior to entering a veterinary college: He landed at Portland, Maine, and went from there to Bloomington, Illinois, where he met by chance a representative of the Japanese government, who was purchasing sheep for shipment to Japan. He accompanied him to San Francisco and thence to Yokohama, where he remained for four years in the employ of the government. Returning to America in 1880 he went to his brother's ranch in Washington Territory. The next year he entered the American Veterinary

College, from which he graduated in 1883 in the class with Dr. Critcherson, and together they occupied the positions of house surgeon to the hospital in 1884. Following the termination of that service, he and Dr. Hamilton Vreeland entered the University Medical College. After receiving his degree from this school, he married Miss Esther Quail, of New York, and entered the employ of the Broadway Railroad Company, remaining there several years, and then became attached to the staff of the Board of Health, thence serving for several years upon the inspection corps of the Bureau of Animal Industry. The latter years of his life were spent in private practice on the west side of New York. He leaves a widow and one son, twelve years old. The funeral services were held on the 5th, interment being in Cypress Hills Cemetery. Masonic services, conducted by Excelsior Lodge, No. 195, F. and A. M., were also held. He was a member of the U. S. V. M. A.

SOCIETY MEETINGS.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

The nineteenth regular meeting was held in Kansas City, Mo., on Monday evening, February 27, 1899, at the Kansas City Veterinary College. On account of the absence of the President, the association was called to order by the Vice-President, Robert C. Moore. The following members were present: Drs. John Forbes, James S. Kelly, John B. Wright, James L. Otterman, E. J. Netherton, William A. Heck, St. Joseph, Mo.; Drs. R. C. Moore, J. B. Black, S. Stewart, B. F. Kaupp, C. J. Sihler, F. C. McCurdy, James S. Buckley, Kansas City, Mo.; E. H. Biart and John Ernst, Leavenworth, Kas.; J. H. Cock, Ottawa, Kas. The following visitors were present: Drs. H. B. Chaney, C. H. Canfield, R. T. W. Carnachan, H. H. George, Albert Long, D. W. Patton, W. R. Cooper, and A. C. Ewart, of Kansas City, Mo.; James Wilson, J. E. Blackwell, and Thomas H. Ripley, of St. Joseph, Mo.; O. Nickson, Cameron, Mo.; G. R. Conrad, Sabetha, Kas.; W. N. Hobbs, Holton, Kas.; W. A. Porter, Sedalia, Mo. There were also present about thirty veterinary students and several laymen.

The censors reported favorably upon the following applications for membership, and upon motion the rules were suspended and the Secretary instructed to cast the vote of the asso-

ciation for the candidates : Jas. L. Otterman, W. N. Hobbs, and W. Ross Cooper.

The resignation of Dr. Burgess, who had removed from St. Joseph to Louisville, Ky., where he could not attend the meetings of the association, was tendered and duly accepted.

A paper on the "Injuries of the Flexor Metatarsi" was presented by Dr. R. C. Moore, as follows :

INJURIES TO THE FLEXOR METATARSI.

This muscle being the sole flexor of the metatarsal region, as well as a check ligament to the same, renders lesions to it of particular importance. Their occurrence in the horse is far from being rare and is sometimes noted in bovines. In herbivora this muscle is composed of two quite distinct parts attached to each other by tendinous intersections. The one part is muscular with tendinous insertions, the other a tendinous structure that might well be considered a check ligament. The tendinous portion arises with the extensor pedis from the distal end of the femur from a depression just above the articular margin between the external condyle and trochlea, passes down through the superior tibial groove, clothed by a reflection of one of the synovial membranes of the stifle joint, passes down over the external and anterior face of the tibia, where it contacts and exchanges numerous fibres with the muscular portion and extensor pedis. Gaining the anterior face of the astragalus it forms a ring for the passage of the tendon of the muscular part, and bifurcates, sending one tendon externally to the cuboid and one downward to the head of the large metatarsal. This portion forms a ligamentous connection between the femur and tarsus and metatarsus, and acts as a stay to prevent undue extension of the metatarsus on the tarsus and the tarsus on the tibia.

Some authors ascribe as a part of its action the flexion of the tarsus and metatarsus during extension of the stifle, but they are, to my mind, in error, as extension of the stifle cannot increase the distance between its point of origin and insertion, but it is probable that it may possess this action to a limited degree during flexion of the stifle. The fleshy portion, or the real muscle, arises from the supero-external part of the tibia just below the groove, becomes tendinous at the distal end, passes through the ring formed by the tendinous part and bifurcates, sending a large, strong tendon to the head of the large metatarsal and a small one internally to the cuneiform parvum.

These structures are subject to injuries, extending all the way from a slight strain of the fibres of some part of their

structure to complete rupture, or they may be severed by cutting instruments or fence wire, or the contractile power of the muscular fibres destroyed by bruises.

Symptoms.—The symptoms are so marked that once seen they will never be forgotten. If the animal be standing on the affected limb when you observe him, you will not detect any unsoundness, provided no external lesions exist, but the moment this weight is shifted from the foot it is drawn backwards, the tarsus being extended on the tibia by contraction of the gastrocnemius, which is the opposing force to the flexor metatarsi, and as a result the tendons of these muscles above their attachment to the summit of the os calcis is greatly relaxed, so much so that the skin of the region is corrugated or thrown into folds, and should you first see him in this position you could not help thinking the distal end of the tibia had sustained an oblique fracture, causing a shortening of the bone, but when you inspect it in its normal position, bearing its share of weight without deformity, the thought of fracture will be dismissed.

The next thought will most likely be directed to the tendo-achilles, but if we consider that this is the support of the posterior part of the hock and any inability on its part must allow the hock to drop down with tarsal flexion the instant weight is placed upon it, and no such symptoms are present, but, on the contrary, the hock supports the weight with its usual firmness, we must likewise banish from our minds the possibility of injury to this structure or to the muscles operating through it. After canceling these possibilities, we look deeper into our case and readily perceive the inability to flex the metatarsus and tarsus on the tibia, and, knowing that but one structure performs this function, we have proven beyond a doubt that the injury is to the flexor metatarsi.

Percivall's "Hippopathology," Vol. IV, Part II, page 337, quotes from Solleysel a beautiful description of this accident, but he unfortunately ascribes it to the tendo-achilles and calls it the master sinew, but his description is so perfect I cannot resist the temptation to copy it. "This," he says, "is the biggest and most visible sinew in a horse's body, which, by reason of a strain occasioned by hard riding, evil shoeing, going down a steep place, a slip or fall, or too heavy burden, may be relaxed, and sometimes disturbed with so much violence that it becomes movable like an unbent bow-string. When a horse walks, the leg seems to hang at the hough, because its motion is not regulated by the master sinew; and you would even sometimes

imagine that the bone was broken. When a horse stands with his foot fixed on the ground, the hough being extended in its natural posture, there is so little appearance of any grief in the leg, that it seems perfectly sound ; but if you handle the master sinew, you will find it more movable than that of the other leg ; and if you make the horse move his hinder parts, you will immediately perceive the sinew to be as loose and infirm as if it were broken."

The causes are varied, but anything that will cause extreme extension of the tarsus and metatarsus is liable to injure the muscle or its tendons, more particularly the tendinous portion. Falling forward, dragging the hind legs behind him, the hind foot becoming engaged or fast and the horse straining violently to free it. Bruises from kicks, being run into by wheel of a vehicle, sharp cutting instruments, barb-wire fences, etc. I have seen two cases where the entire structure was cut off near the distal end of the tibia on wire fences and two cases where the muscles were bruised respectively by being run into and falling. The two latter recovered, but it was thought best to destroy both those cut on the wire.

Prognosis will depend very largely on the extent of the injury. Where complete rupture of the entire structure has occurred resolution can scarcely be expected, and the same will be true if they are torn loose from the bone, although in the worst cases if the foot is kept well forward recovery may take place.

Treatment.—Perfect rest is essential, with slings for the horse if he will bear them. The leg should be kept well forward by a cord secured to the fetlock and around the neck, hot fomentations to allay the inflammation and stimulating liniments will be sufficient. Rest should be prolonged until all signs of the lesions have disappeared. If an external wound, antiseptics and astringents are required.

DISCUSSION.

Dr E. J. Netherton : I wish to inquire of the essayist in how long a time he would expect full recovery in these cases, and whether it would be worth while to treat an animal of small value?

Dr. Moore : This would depend upon the extent of the injury. If it is a simple bruise of the muscular tissue ten to twelve days would be sufficient. If the tendon be ruptured or nearly so, it will take much longer. There have been several cases reported in which the period of convalescence was ten to

twelve months. If it be a valuable animal, it will justify treatment for a considerable length of time.

Dr. Heck: This reminds me of a case that Dr. Patterson and I diagnosed as rupture of this muscle. The case recovered in ten days and seemed too rapid to justify the diagnosis. It was a case of a mule that was used on an express wagon. We got some very fine photographs of the case, but I forgot to bring them with me. It had every symptom of rupture of this tendon or muscle. It might have possibly been temporary paralysis of the nerves of this region. The animal could bear the weight of the body on the limb when placed in position, but had no further use of it.

The following paper was next presented by Dr. S. Stewart, entitled

ECHINOCOCCUS VETERINORUM.

In the substance of this liver, which is offered for your inspection, you will see a number of ovoid or spherical translucent bodies, varying in size from one inch to three inches in diameter. Some of them are apparently just beneath the capsule, while others are nearly hidden in the liver structures. There are still others which are entirely within the substance of the organ. These bodies are cysts and typical of the cystic phase of the echinococcus veterinorum, and constitute the hydatid disease of the older text-books. About five hogs in each one thousand slaughtered in this section of country are bearers of the cystic echinococcus. These cysts may develop in any part or tissue, but are rarely found outside of the liver. The lungs are next in frequency of invasion. The dog is the host of the adult tapeworm, but nearly all animals may be the host of this cystic or larval form. In Iceland and continental Europe numerous cases of hydatid disease in mankind are recorded; a few cases have been reported in the United States. On account of this fact a thorough knowledge of this parasite is of sanitary importance to veterinarians.

Upon division of the walls of this cyst which I have selected you will note there escapes a quantity of clear, limpid fluid, and the wall is composed of two distinct layers. The outer layer is quite dense and intimately adherent to the surrounding structures; in fact, it appears to be a protecting wall developed from the tissues to resist the encroachment of the growth within. The inner layer is also quite thick and dense, and, while everywhere closely coapted to the outer wall, it is very feebly adherent to it and is very readily separated and withdrawn through the in-

cision just made. One distinctive characteristic of this membrane is a very persistent tendency of the cut edges to roll up. In fact it is almost impossible to make it lie spread out upon a plain surface or on the palm of your hand. This powerful tendency to roll up is not possessed by any other membrane, according to some writers; hence when we find such a membrane, even when lacking particular characters soon to be mentioned, we may be reasonably certain the structure under observation is the mother membrane of an echinococcus cyst.

A close inspection of the inner surface of this mother membrane shows it to be studded over by a great number of very small greyish white bodies or granules which are loosely adherent and may be easily scraped away. I have mounted a number of these minute bodies on a microscopic slide and if you will examine them under a lens magnifying 75 to 100 diameters you will readily see that these little bodies (proliferous cysts) contain from 15 to 30 pediculated tapeworm heads. Each head is provided with two oval disks, called sucker disks and a rostellum of hooks. They constitute the fixation apparatus of the future worm. In nearly all the heads these organs are invaginated.

In these drawings pinned on the wall you have a magnified picture of a typical hydatid, and a representation of the more common modifications, such as the daughter and granddaughter cysts which develop from the mother membrane and may produce the little granular bodies containing the tapeworm heads. Sometimes many small cysts are found, but in which the minute tapeworm heads cannot be found. These are known as acephalo cysts.

This last drawing represents the adult worm as found in the intestines of the dog. The mature worm varies from one-sixth to one-fifth of an inch in length and is composed of only three or four segments, the last one of which is nearly as long as the first three, is sexually mature and contains several thousand eggs. It is readily understood that a dog which eats two or three cysts such as we have just examined, would become infested with a large number of these parasites. The heads attach themselves to the walls of the small intestines and become mature within 60 days, thereafter releasing the last or fourth segment as soon as ripe (ovulation completed) and continuously developing others. In this manner myriads of eggs are produced and pass out with the faecal discharges. The segments become dried, powdered and the fragments are blown about by

the wind. In this way the eggs find lodgment on all kinds of food stuff and with it are conveyed into the stomachs of animals and even man. The digestive processes in the stomach liberate the embryos in the eggs, which may permeate the walls of the intestines, enter the blood stream and find lodgment in any organ or part of the body, there to develop into cysts like these. Sometimes in man the cysts develop to immense proportions, or undergo degenerative changes which compromise the health and finally the life of the host.

Dogs infested with large numbers of these worms (*tænia echinococcus*) may suffer reflex nervous irritation with cerebral disturbances, including a state of frenzy, which may be mistaken for rabies. A post-mortem examination of the intestines of infested dogs would not reveal the presence of these worms to the casual observer, owing to their minute dimensions, but they are easily found by the close observer, and appear as short yellowish threads or filaments attached by one end to the mucous membrane. The prevalence of hydatids in swine indicates that many dogs, particularly those belonging to butchers and farmers, are infested with the adult worm. If butchers and farmers would cook or burn all organs of swine containing the cysts, instead of giving them to their dogs, the *tænia echinococcus* and its hydatid would soon be annihilated, and this menace to the public health be removed.

DISCUSSION.

Dr. McCurdy: I understood the essayist to say that the adult worm was only found in the intestinal tract of the dog. I wish to inquire if this worm does not sometimes migrate to some other parts of the body.

Dr. Stewart: So far as I am informed, no cases have been reported where the adult worm was found in any other part of the body than the intestines. The worm is fixed in its location by its hooks and sucker disks and lives by absorption of food intended for its host. The disease is found most frequently in man (in the hydatid form) in Iceland, where the people and dogs closely cohabit.

Dr. McCurdy: Do the records show whether the disease is prevalent among the Indians and Chinese, where the dog is consumed as food?

Dr. Stewart: The records do not show such prevalency and the parasite is not communicable through eating the flesh of the dog, but it is only acquired by the ingestion of the eggs of the adult tapeworm. In countries where the hydatid form of

this disease is prevalent among the people, it is found that it is also prevalent among the food-producing animals.

Dr. McCurdy: I think of another question. It seems to me that I have seen the cysts very much larger and of a slightly darker color. Do they vary in color?

Dr. Stewart: The cuticular and mother membranes undergo changes as the hydatids become more and more aged. The cysts become opaque or white and undergo degeneration and the original structures become so transformed that it is difficult if not impossible to determine their original character. Often the question is determined by finding the cephalic hooks.

Dr. Cock: Are there any means by which we can diagnose this in the hydatid form either in man or animal ante-mortem, and have we any secure means of confirming our diagnosis?

Dr. Stewart: This is certainly a very practical side of the question from the human standpoint. If some of the contents of the cyst be secured by the exploring trocar, there is no doubt the proliferous cysts or individual heads would float out with the fluid, and by microscopical examination the character of the cyst would be determined in this way.

Dr. Cock: It seems to me that it is stated that its character may be determined by the absence of albuminous material in the fluid.

Dr. Stewart: I think the absence of albumen is noted in the fluid obtained from a variety of cysts.

Dr. Heck: This discussion concerning the character of the cystic fluid calls to mind our discussion in a former meeting concerning the character of fluid contained in the cystic kidneys, and it might not be out of place for me to revert to the subject here. I have made some analyses of the fluid obtained from cystic kidneys, and have found it to be as follows: Alkaline in reaction, specific gravity 1007, albumen in large quantities. I would be pleased to hear other reports in regard to the cystic kidneys. I find there is a disease or condition in human practice known as hydro-nephrosis. Whether this is analogous to our cystic kidneys I am not able to say, but the resemblance is very striking. They are supposed to be a collection of the urine developed through obstruction of the uriniferous tubules or occlusion of the ureters themselves. These cysts do not always contain urine, but sometimes contain fluid of a urineverous nature.

After the discussion recess was taken to exchange greetings with those who had come in since the opening of the meeting

(*To be continued.*)

CHICAGO VETERINARY SOCIETY.

On Thursday, February 9th, President Robertson called the regular monthly meeting to order, with Drs. F. McCoy, L. A. Merillat, W. E. Howe, L. Campbell, E. L. Quitman, President Robertson and the Secretary present, showing their courage by braving the bitterness of twenty degrees below zero, and they were well repaid, even though they were compelled to endure the hardship of a meeting room as cold as the street corner.

On motion by Dr. E. L. Quitman, supported by Dr. Campbell, it was resolved to suspend the roll-call and regular order of business and afford Dr. L. A. Merillat an opportunity to present some very interesting facts concerning the ups-and-downs of a bill before the State Legislature, its course back and forth, how it is lost and found, harried and balked by amendments and discussion. Also the great need of a good lobbyist to keep track of it until it is passed or killed.

After discussing the methods of advancing legislation, he presented a bill for the society's consideration for State regulation of the practice of veterinary medicine and felt quite confident that it would become a law if properly pushed when presented to the legislature for action. Its merit was discussed at length, and on motion by Dr. E. L. Quitman, supported by Dr. McCoy, it was resolved that the society approve of it and exert every effort for its advancement.

MARCH MEETING.

The regular monthly meeting was called to order, Thursday, March 9th. President Robertson presided and the following members attended: Doctors F. Allen, L. Campbell, Jos. B. Clancy, O. R. Dubia, Jas. G. Fish, W. E. Howe, F. McCoy, C. G. Nelson, H. D. Paxton, Jas. Robertson, R. G. Walker, and H. Busman, of the U. S. B. A. I., visiting.

The roll-call was dispensed with. The minutes of the previous meeting were read, and, there being no objection, were ordered approved.

President Robertson, while waiting for a few tardy members to appear before proceeding with the regular programme, read some of the scores of letters received by members from senators, representatives and citizens, who complied with requests made of them to exercise all possible influence for the advancement of an amendment to the army reorganization bill, as petitioned by Dr. D. E. Salmon, Chairman of the Committee on Army Legislation of the American Veterinary Medical Association.

Speaking for this city, he expressed the opinion that veterinarians here had done their duty in the matter, as evidenced by the numerous letters before him and felt that the committee had earned the praise and gratitude of the whole profession for the labor achieved.

On motion presented by Dr. Walker, it was resolved that the Legislative Committee communicate with the different candidates for the office of mayor and ascertain, if possible, their intention regarding the appointment of a qualified veterinarian to attend to the medical needs of the horses of the city police department, now attended by a former patrolman.

The Secretary was ordered to forward excerpts of the foregoing resolution to the city press, on motion of Dr. Fish, supported by Dr. Dubia.

Dr. R. G. Walker then read a paper as follows :

DR. ROB'T G. WALKER'S PAPER.

Gill-Flirt, Laceration of the Perineum.—The injury is a laceration of the space between the anus and genital organs, sometimes including the sphincter ani. In this case fæces pass from the rectum into the vagina. The voiding of fæces is to some extent difficult and more or less incomplete and offensive. Many mares in this condition have been used as brood mares with good results; cases are reported by members of the profession to have made complete recovery after surgical treatment. The so-called gill-flirt I consider unsound.

Paralysis of the Sphincter Ani, of Tail and Paralysis of the Penis.—If such condition exists at time of examination it constitutes an unsoundness. Paralysis of sphincter ani or of the tail is generally the result of a blow or force applied to the rump, which sometimes causes a fracture of the sacrum and injury to the nerves supplying the tail and rectum, including the muscles of that region. You can have paralysis of the tail without paralysis of the sphincter ani and again both conditions at the same time. I have had many cases of paralysis of the tail that have made successful recovery. The same cases came early under my care, say five days after an accident or as soon as the condition was noticed by the owner or attendant. Have seen horses in hands of horse dealers that could neither raise nor switch their tails. How long they have been that way I could not tell, but do not think that any treatment would be successful. Veterinarians examining horses for soundness should not omit examining tail.

Curvature of Spine, roach or high back, the opposite of low

back, is frequently produced by animal being put to draw and back heavy loads when very young, but many cases are not the result of work, as in many cases and the same conditions have been noticed long before the animal had any harness on; when it occurs to a moderate extent only it does not impede animal in his work and therefore he is sound. When it is a positive disfigurement to the horse it is said to be a blemish. When the horse is weakened or the horse is thereby impeded in his work he is unsound, however.

Melanosis.—Common in gray and white horses on the black part of the skin at the root of the tail, around the anus, vulva, udder, sheath, eyelids and lips. Some authors recommend removal with a knife, others recommend no treatment. I have seen cases where members of the profession have operated where very bad results followed. In all cases that have come to my notice where I have been able to keep track of the animal, the older the animal the more aggravated the case, therefore I would not hesitate on examination to pronounce the animal unsound.

Enchondroma of Cariniform Cartilage, unsound.

Broken Ribs on examination, unsound. I have treated several cases, which have all made speedy recovery, leaving no bad effects. I have always applied cold pack on wet blanket, keeping the animal on laxative diet, noting the pulse and temperature.

Sitfasts.—It would require to be a very much worse case of sitfast than any that has yet come across my path to be pronounced unsound, as in all cases I have had of sitfast, speedy recovery with very little treatment followed, but I would advise that client be informed, as bad results might happen if care be not taken.

Lumbar Anchylosis, unsound.

Phymosis.—A morbid condition of the prepuce or sheath, which from contraction of the orifice prevents the drawing in or exit of the penis (Percivall). Blows, kicks, contusions, wounds, abscesses within the sheath may all be set down as occasional causes (Williams). On examination and finding such condition, unsound.

Paraphymosis.—The penis is protruded in paraphymosis and cannot be withdrawn within the sheath. It may arise from injury or from some debilitating disease, as in purpura, frostbite, etc., very often these being the cause. I have had several cases the result of frostbite. The first case that came to my notice

was in a hospital of a city veterinarian and lasted for several weeks. Amputation was resorted to, but with very bad results. The last case I saw had been under the care of a local veterinarian, who had amputated a portion of the penis and returned animal to the owner, who was a horse dealer. Horse dealer disposed of animal to a client of mine, and the third day after the purchase I was sent for and was informed that the horse could not make water. I was satisfied by the symptoms that the owner was right, and so got hold of the penis with the intention of using the catheter, but found amputation of a portion had been performed. I so informed owner, but it was impossible to pass catheter, so I recommended to try and return horse to dealer. An arrangement was made that the dealer should take back the horse, which he did in a few days afterwards and the horse died in dealer's stable the next morning. I think that very unsatisfactory results follow the amputation of a portion of penis, and, if satisfactory, the length of time it takes for animal to recover the owner would object to pay bill. Besides, the owner might have many lawsuits on his hands on account of the animal urinating on the sidewalk in place of the street. The cases cured by frostbite that I have treated have caused me very little trouble and in no instance have I had a return of the trouble. I have always used an ointment of boracic acid, benzoin and cosmoline, covering the penis entirely with ointment and cotton batten, using a support, tightening the support the second or third day, redressing again and repeating support two days more. Then pushing the penis as far up into the sheath as possible, using support again and at the end of two days again. I have always been able to get all of the penis up into the sheath, still using the support and placing cotton up into the sheath, and in a very short time the animal made a successful recovery.

Paralysis of Penis, if existing at time of examination, is certainly unsound. I have had one case of paralysis of the penis that I treated just in the same way as frostbite. The animal was in my hospital for 30 days, when he was able to go to regular work. The following July the horse was returned to my hospital in the same condition, treated as before, working in 30 days, and it is now seven years since, and animal when I saw him last, about four months ago, was doing his regular work and no paralysis of the penis existed. Have always treated such animals with laxative diet and nux vomica.

Mammitis (Inflammation of mammary gland).—Unsound.

I have been very successful in mammitis after applying camphor and lard, but have had no good results from hot fomentations, poultices or belladonna ointments.

Orchitis (Inflammation of testicles).—Unsound.

Cancer of Penis.—Unsound.

Hydrocele (Dropsy of the scrotum).—Unsound.

Hernia.—Unsound.

Scirrhus Cord.—Unsound.

DISCUSSION OF DR. WALKER'S PAPER.

Dr. Paxton: Dr. Walker mentions a case of a paraphymosis due to paralysis and recommends simply a suspensory, which has no therapeutic value. I think an amputation in some cases would have been safe.

Dr. Walker: The horse I referred to that was operated upon and died was of no great value. I was called to it when I knew that the horse could not live. I made an examination, but could not find any opening, and no water, but matter, came out of the penis. If it had been a very valuable animal I probably would have advised operating again, but I thought it was a hopeless case anyway when the pus came out in this way, and therefore I thought it best not to operate. Every case that I have seen operated upon proved very unsatisfactory. As to the one I treated with a support, I had so much success with similar treatment that I considered it the best method.

Dr. Allen: I cannot agree with Dr. Walker as far as amputation of the penis is concerned. I have had two or three cases that I operated upon and they are all right, though I do not claim to be a better operator than anybody else.

Dr. Howe: Dr. Walker, I would like to ask, in cases where you amputated, how much did you remove from the penis?

Dr. Walker: From four to six inches.

Dr. Howe: I operated on one, but do not know result.

Dr. Robertson: I had one case where a horse's penis was very badly swollen for some time and when brought to me the top was ready to slough off. I amputated the head and seared it. Had considerable hæmorrhage, but searing stopped it. The horse seems to be working all right ever since. I do not see why there should be any trouble following amputation of the penis. In my opinion this case of paralysis that the doctor mentions that resulted favorably by treating it with ointments, was because the support and the ointment relieved the inflammation considerably. I have seen several cases where a support without fomentations was all right. I know of another

case treated by Dr. Hughes where cold fomentation had good effect. When complete paralysis of the penis exists, it is rather hard to return the penis to the sheath.

Dr. Clancy : How do you operate, Dr. Allen ?

Dr. Allen : Put in an old catheter, make a circular incision with a knife and then use the ecraseur.

Dr. Busman : I had two cases I operated upon and both with good results. One was where the penis was frozen during the winter and the other was the result of a scirrhus cord. The one with the frozen penis was brought to me in spring. I operated on both with good results. Mode of procedure : I left about two inches of the urethra to be stitched back, and the remainder I cut off with an ecraseur and left the catheter in for about three days.

Dr. Campbell : Did the stitch come out ?

Dr. Busman : I do not think it did, anyway not to my knowledge.

Dr. Robertson : I believe the essayist said that he pronounces a case of sitfast as sound. Does he do so in every instance ?

Dr. Walker : I had some cases of sitfast that were in very bad condition ; still, I never had a case that was incurable. A dealer never tries to sell a horse with sitfast that has gone so bad that it could not be cured if properly attended to. Anyway I recommend the client to give the horse proper attention.

Dr. Campbell : What is the best way of curing sitfast ?

Dr. Walker : Simply cutting it out.

Dr. Dubia : I do not think that anybody would be justified in passing an animal as sound if the owner must spend money to treat it afterwards for blemishes existing at the time of examination.

Dr. Walker : I tell the purchaser about it.

Dr. Robertson : In regard to melanotic tumors, do you say that removing them is not a successful operation ?

Dr. Walker : In many cases not.

Dr. Robertson : I had one case in a gray mare. The size of the tumor was nearly as large as a man's head, weighing about 8 pounds, which I removed successfully and had very little hæmorrhage.

Dr. Campbell : Did any one of the members see a case of melanotic tumors in any other but a gray horse ?

Dr. McCoy : I have seen some in a chestnut, but they were very small.

Dr. Allen : The essayist states that scirrhus cord is unsound. How can you differentiate a case of very small scirrhus cord and a case of recent castration?

Dr. Walker : I would make a very close examination and if the animal was but recently castrated, I would call the attention of my client to it.

Dr. Allen : Can a scirrhus cord be treated with iodide of potash successfully?

Dr. Walker : Yes.

Dr. Allen : Would you treat a very bad case with iodide of potash, say one weighing seven or eight pounds?

Dr. Walker : I might. I have never removed one myself, but I understand that bad cases were treated successfully with iodide of potash.

Dr. Robertson : I had a case of that kind in a horse that had quite a discharge from the scrotum. I inserted a probe, opened it up a little so as to have room for the syringe and treated the horse internally with iodide of potash and in two weeks the horse was all right.

Dr. J. G. Fish will lead the discussion on Glandular Diseases of the Throat, Obliterated Jugular, Crestfallen and Wry Neck in their relation to soundness at the April meeting.

After a brief informal discussion it was resolved to adjourn.

JOS. B. CLANCY, D. V. S., *Secretary*.

NEBRASKA VETERINARY MEDICAL ASSOCIATION.

This association held its semi-annual meeting at the Capital Hotel, Lincoln, February 21, 1899. It was one of the most interesting sessions the association has ever held, as evinced by the intense interest in the discussions following the papers. The meeting was called to order at 3 o'clock by Vice-President Dr. George P. Tucker, of Lincoln. The following members were present: Drs. E. T. Bowers, Hastings; A. Bostrom, Minden; J. J. Drasky, Crete; C. F. Leslie, Wahoo; A. T. Peters, Lincoln; H. L. Ramacciotti, Omaha; G. P. Tucker, Lincoln; V. Schaeffer, Tekamah; S. D. Cosford, Lincoln; G. R. Young, Omaha; J. S. Anderson, Seward, and A. W. Thomas, Lincoln; and J. D. Sprague, David City. Mr. Heath, of the *Nebraska Farmer*, Mr. Fassett, of the *Western Swine Breeder*, and V. C. Barber, of the Agricultural Experiment Station, were present as visitors.

It was decided to hold the next meeting in connection with the Iowa Veterinary Association at Omaha, next fall. An invi-

tation was extended to the Missouri Valley Veterinary Association to meet at this session.

House roll 475, the new veterinary bill, demanded much attention, and important testimony was brought out relative to its necessity for the protection of the veterinary profession, as well as the live stock interests of the State. Many outbreaks of rabies and other contagious and infectious diseases were reported, showing the necessity of Nebraska having a State Veterinarian. It was noted that Nebraska stands alone as the only State without such an officer. The bill has already passed the Live Stock and Grazing Committee and indications were reported as favorable for its passage.

Resolutions were passed extending the sympathies of the association to Dr. Solomon Bock, of Denver, who was recently stricken with paralysis and has been obliged to abandon an extensive practice. Resolutions were also passed expressing the association's thanks to Dr. Gresswell, of the same city, for his excellent work at the National Stock-Growers' Association in the interest of sanitary science and the veterinary profession. On account of the recent action of the Trustees of the Ames Veterinary College, of Iowa, relative to the removal of a competent veterinarian from its faculty, the Secretary was instructed to inquire into the matter, to ascertain the standard of the institution.

V. C. Barber, assistant animal pathologist of the Agriculture Experiment Station of the University, was elected honorary member of the association.

Officers continued for the ensuing term are: Dr. V. Schaeffer, Tekamah, President; Dr. Geo. P. Tucker, Lincoln, Vice-President; Dr. A. T. Peters, Lincoln, Secretary, and Dr. J. S. Anderson, Seward, Treasurer.

After adjournment of the afternoon session the members, upon invitation from Mrs. A. T. Peters, attended a delightful luncheon at her home.

In the evening Dr. J. S. Anderson, of Seward, read a paper on "Fistulous Withers and How to Operate Them." He regarded cutting as the surest method of effecting a cure. Though this method met with some opposition in the discussion that followed, Dr. Anderson very ably defended his manner of treatment of this very common affection with which the veterinarian has to cope.

Dr. J. J. Drasky, of Crete, then read a paper entitled "What I Saw at Omaha." After paying tribute to the association for

the able manner in which they entertained the national meeting of the American veterinarians at Omaha last September, he touched upon the benefits to be derived from attending these conventions. The main object of his paper, however, was to reprimand a veterinarian, who, in the course of a clinic before the above mentioned national association, acted in a most unprofessional manner and took occasion to belittle a skilled Omaha veterinarian. It was Dr. Drasky's desire that this reprimand be not made public, but the members, seeing the opportunity of thrusting a blow at "quacks," unanimously decided to publish his paper in the leading veterinary journals of the country.

"Cornstalk Disease in Cattle and Horses" was the subject of a most excellent paper by Dr. A. Bostrom, of Minden. He regarded death in cornstalk fields as not due always to the stalks, but that "fungus diseases" were the cause of much of the trouble. The discussion was long and earnest, and many new facts were brought to light, that may be fruitful of much interesting knowledge in the near future.

"My Experience with Black-leg Vaccine" * was read by Dr. Peters, the author of the paper, Dr. M. V. Byers, of Osceola, being absent. Dr. Byers stated in a clear and concise manner his extensive experience with the method of preventing the disease and showed plainly that it was the surest and safest method of prevention.

Dr. A. T. Peters, of the University, then followed with a history of black-leg vaccination, tracing it from its introduction in the old country, up to the present time. He explained how the vaccine was prepared and used, stating that it could now be obtained free of charge from the Agricultural Department. He said that 33,000 cattle had been vaccinated in Nebraska during the past year with most gratifying results. Dr. Peters' talk ended the programme, which, on account of the long discussions, lasted until after midnight.

The association voted to attend in a body the Improved Stock-breeders' and Swine-breeders' meeting.

A. T. PETERS, *Secretary*.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was called to order at the New York Academy of Medicine, 17 W. 43d Street, at the usual hour, April 6th, by President Robertson. The following mem-

* Published elsewhere in this issue.

bers responded to roll-call: Drs. Bretherton, Bell, Clayton, Dickson, DuBois, Ellis, Hanson, Keller, McKellar, O'Shea and Robertson. Drs. Howe and Nicolas as visitors. The minutes of the previous meeting were next read and approved.

Report of Board of Censors.—Dr. Clayton, Chairman, reported that the committee favorably recommended for membership in the association Dr. C. H. Du Bois, graduate of the A. V. C., class of 1896, whose application had been filed at the last meeting. Moved and seconded, that the report of the committee be accepted and that Dr. Du Bois be declared a member of the association. Carried. Dr. Du Bois was then introduced to the members by Dr. Clayton.

Reading of Papers.—Dr. R. S. MacKellar then read a paper entitled "Paraldehyde in Veterinary Practice."* Dr. MacKellar's paper, brief and to the point, was listened to with keen interest by his fellow members, who gave expression to their interest in the discussion which followed:

Dr. Bell: I think the use of paraldehyde in veterinary practice is a revelation to most veterinarians, as I have never heard of its being used in veterinary practice for this purpose; and, therefore, this paper is of great importance, as by it we may profit by the experience of the essayist. I consider it a great advantage, as it permits us to do many operations standing in cases where we could not possibly have obtained the owner's permission to cast the animal.

Dr. Hanson: In human practice it is considered inferior to chloroform. Do you find it superior?

Dr. MacKellar: I regard it as superior for the purpose used.

Dr. Clayton: Are the effects upon the motor nerves less than with chloral? It has been recommended to me in castrating standing. How long does its effects persist?

Dr. MacKellar: Its effects on the motor nerves are less than with chloral, and persist for about an hour.

Dr. Clayton: Are there any bad after effects the next day?

Dr. MacKellar: None.

Dr. Nicolas: Is hæmorrhage less profuse than in use of chloral?

Dr. MacKellar: I have not noted any difference; but am not prepared to state positively.

Dr. Clayton: Does it at all retard the healing process?

Dr. MacKellar: No.

* Printed elsewhere in this issue.

Dr. Ellis : Have you experimented with it in colic?

Dr. MacKellar : No ; in reading up on it in Finlay Dun we learn that it has no effect on internal pain.

Dr. Bell : To depart from paraldehyde for a moment, I would like to know the experience of some of the members present, on the use of acetanilid.

Dr. MacKellar : I used it upon a case of pneumonia with temperature 107 F. ; horse so weak that he fell when man laid his hand heavily upon him (man being intoxicated), and got marked improvement from its use.

Dr. Bell : I am very enthusiastic over the results obtained from the employment of this drug, and clinical experience, with me at least, has disproved the charge against it as a heart depressor. I consider eight hours the proper period of time that should elapse between doses—allowing the temperature to slightly elevate after the effects of the last dose, and then repeat, and I consider two drachms to be the proper dose, given in conjunction with digitalis.

Dr. Clayton : Can you get the same results from a smaller dose than two drachms?

Dr. Bell : No ; you must give two drachms to get the results, and for rheumatoid fevers, it is as near magical as anything in the drug line.

Dr. Howe : I did not come up here to say anything to-night, but I am interested in this discussion. A favorite prescription with me for influenza is a combination of acetanilid, quinine and digitalis.

Moved by Dr. Hanson and seconded by Dr. O'Shea, that a vote of thanks be extended to Dr. MacKellar for his interesting and valuable paper. Carried.

Reports of Special Committee to Investigate the Legality of the Appointment of Laymen as Meat Inspectors.—Dr. Hanson, Chairman, read a letter from the President of the Health Department, in which he states, that while he does not doubt the correctness of the preamble and resolutions contained in Dr. Hanson's communication of February 7, the Department under the law is compelled to take from the list certified to it by the Civil Service Commission, and has no voice or choice in the matter.

Moved by Dr. Clayton that the chairman of this committee send a registered letter to the Secretary of the Civil Service Commission, calling his attention to the former letter. Seconded. Carried.

Reports of Cases.—Dr. Robertson reported a case of sudden death; young green horse falling dead after ascending a hill, in which post-mortem revealed internal hæmorrhage as the cause of death, due to the rupture of some large vessel, but as the post-mortem had to be held by the light of a lantern, they did not learn just what vessel it was.

Dr. Clayton reported several cases of sudden death that had come under his notice. One, while scoring heats on a race track, another in which death occurred while performing neurotomy, the animal being cast. Post-mortem revealed heart rupture, and a third one suffering with purpura hæmorrhagica.

Motion by Dr. Bell, that as an adjournment to Dr. Clayton's paper on "Median Neurectomy," read at the last meeting, he perform the operation upon a subject which *he* would furnish. After some discussion, it was regularly moved and seconded that the Secretary notify the members of the association, that a surgical clinic would be held at the American Veterinary College, on Tuesday, April 11 at 4 P. M. Seconded. Carried.

Ways and Means Committee.—Dr. Bell, Chairman, reported that there would be two papers at the next meeting and a surgical clinic in the interim.

Moved and seconded that the meeting adjourn. Carried.

ROBERT W. ELLIS, D. V. S., *Secretary.*

MONTREAL VETERINARY MEDICAL ASSOCIATION.

A meeting of this society was held on March 21st in the library of the college, Prof. Chas. McEachran occupying the chair.

After disposing of some business the Chairman called upon Mr. Stanbridge for his case report, which was one of rupture of the suspensory ligament in an eight-year-old mare. While out driving this mare she became suddenly lame in one foreleg, was rested and blistered along the course of the flexor tendons, where the trouble seemed to be. She recovered for a time, but while out driving she became again lame, came down on her fetlock and foot turned up. She was destroyed and on post-mortem examination showed the suspensory ligament to be ruptured and in a gelatinous condition. The conclusion reached was that she had at some time been nerved.

This was followed by an essay by Dr. Moore on the subject of "Tuberculosis," as follows:

Tuberculosis is a contagious disease, due to the tubercle bacillus, discovered by Koch in 1882. Its prevalence in man is

so extensive that no disease deserves more attention. It exists in the lower animals to a greater extent than most people suspect, the dairy cow being most predisposed. Accessory causes of the disease are : (1) Hereditary predisposition ; (2) dark, damp, ill-ventilated stables. The symptoms are not always present, and we rely nearly wholly on the tuberculin test. The characteristic lesion of tuberculosis is the miliary tubercle, which consists of three forms of cells—giant, epithelial cells, and leucocytes ; the tubercles are devoid of blood vessels. The origin of the various constituents of the tubercle and their relation to the bacilli : The fixed cells of the tissue first show signs of change. They are induced to proliferate by the bacilli. The nuclei of these cells show karyokinetic figures, and both the giant and epithelial cells result from these changes.

The neighboring blood vessels are affected by the virus and from them an emigration of leucocytes occurs. This transformation is rapid or slow, according to the number of bacilli present. Changes in the tubercle : Caseous necrosis, or necrosis, and fatty degeneration of the structures.

Fibrous transformation occurs in chronic cases and when the bacilli are few. Softening is the result of caseation and ends in a cavity or ulcer, or it may accumulate without softening and undergo calcareous infiltration.

Post-mortem lesions may be found in nearly any organ of the body, the glands at the bifurcation of the trachea being especially predisposed.

The bacilli may be passed from a diseased animal from the discharges from the nose and mouth, discharges from the bowels, in milk, etc. It is transmitted from animals to man principally by the milk ; also by the meat if not well cooked.

Infection of cattle may occur : Nine-tenths by inhaling the tubercle bacilli dried and suspended in air, one-tenth by the food infected. Rarely through copulation. From 1 to 2 per cent. of calves may be born with tuberculosis.

Butter and cheese factories are great sources of danger, the milk being all mixed and each patron taking home his share of the skim milk or whey and feeding his calves.

To keep clear of tuberculosis :

1. Do not buy any stock that has not been tested.
2. Keep outside animals out of your stables.
3. Do not allow consumptives to care for your stock.
4. Keep the stables well lighted, ventilated and drained.

Sanitary precautions to observe if tuberculosis is present :

Take up floors, partitions, etc., and thoroughly disinfect, applying the disinfectant by means of a spray pump; disinfect thoroughly or not at all.

Dr. Moore said: The great secret of keeping stock of any kind free from disease is carefully attending to the proper hygienic surroundings, judicious feeding, and avoiding all the causes that tend to lower a creature's vitality. Then should they be exposed to contagious diseases they are in a much better condition to resist its infective influences.

This proved to be a very interesting and instructive paper. Dr. Moore having had considerable experience with this disease was fully able to treat the subject from a practical point of view.

After tendering Dr. Moore a hearty vote of thanks the meeting adjourned. JAS. MCGREGOR, *Secretary-Treasurer*.

VETERINARY MEDICAL SOCIETY UNIVERSITY OF PENNSYLVANIA.

Meeting was called to order March 17, at 8 P. M. Mr. Newcomer was appointed critic. The programme of the evening consisted of an address by Dr. Alexander Glass on the "Different Breeds of Dogs." The members of the society were accorded the privilege of asking any question they deemed advisable. All were very well pleased with the interesting and instructive lecture.

Upon the adjournment of the meeting the members gathered in the assembly room, where a light lunch and smoker were participated in. Among those present were Drs. J. W. Adams, Alexander Glass, B. F. Senseman, C. J. Marshall and J. H. McNeill. The honorary president, Dr. Adams, entertained the members in an admirable manner. This affair also is enrolled in the archives of the society as one of those important events of student life. L. A. NOLAN, *Secretary*.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

The following letter, from Secretary Stewart, dated April 21st, contains interesting data in reference to the forthcoming meeting and keeps our readers in touch with the developing programme:

"Plans for our meeting next September seem to be progressing rapidly, with every prospect of having a large and representative attendance and a well diversified programme, contributed by members from all sections of the country.

"The following members have expressed their intention to present papers : W. Horace Hoskins, C. C. McLean, of Pennsylvania ; J. J. Repp, of Iowa ; M. E. Knowles of Montana ; Roscoe R. Bell, C. E. Clayton, H. D. Gill and W. L. Williams, of New York ; W. H. Dalrymple of Louisiana ; Charles Gresswell, of Colorado ; L. A. Merillat, of Illinois ; B. McInnes, of South Carolina ; Wm. Herbert Lowe, of New Jersey ; A. T. Peters, of Nebraska.

"Among the topics to be presented will be the following :— 'Dairying from a Pure Milk Standpoint,' 'Routine Manipulations and Operations,' 'The Veterinarian in Public Life,' 'Diseases Peculiar to the Rocky Mountain Region,' 'Acetanilid as an Antipyretic for the Horse,' 'Arytenoideraphy a Practical Operation,' 'Diatetics,' 'Notes on Filaria Immitis.' I will doubtless be able to announce a number of other titles in the next issue of the REVIEW.

"I trust the local Committee of Arrangements will have so far mapped out its plans as to permit some outline at least to be published in the May REVIEW."

NEWS AND ITEMS.

"WITHOUT THE REVIEW I AM AT A LOSS."—*P. A. Girard, M. D. C., New Richmond, Wis.*

DR. J. F. BUTTERFIELD, of South Montrose, Pa., believes cryptorchidy to be hereditary.

SIX veterinarians took the Civil Service Meat Inspectors examination at Cincinnati on April 11th.

DR. FRANK MCCOY, of Chicago, attends to a great many "cat calls" and thinks it is good easy money.

DR. H. W. HAWLEY, of Chicago, is one of the large exporters of light drivers to England and the continent.

"DON'T combine acetanilid and digitalis ; it will kill the animal," says Dr. Joseph Hughes, and he knows it will.

JUDD PHILLIPS, V. S., of Warringsburgh, Mo., has removed to Saratoga Springs, N. Y., where he is assistant to Dr. T. S. Childs.

DR. R. G. WALKER says : "Use camphor and lard for mammitis and allied inflammatory processes. It will do the work every time."

THERE were four veterinarians before the Civil Service Commission at Kansas City recently taking the examination for Meat Inspectors.

DR. JOHN H. MCNEALL has recently been appointed Assistant Inspector to the B. A. I. and assigned for duty at Buffalo, N. Y.

MRS. CAROLINE BECKER, of Buffalo, N. Y., announces the engagement of her daughter, Emma Nellie, to Dr. Louis Kenneth Green.

DR. LOUIS KENNETH GREEN, of the United States Bureau of Animal Industry, has gone to Detroit to take charge of the station at that place.

A. V. LANGE, D. V. S., of San Antonio, Texas, has been stirring up interest in meat inspection in that city by means of letters in the local papers.

DR. THOMAS CASTOR, of the B. A. I., was recently transferred from Indianapolis to Buffalo, N. Y., to take charge of the microscopic work at that point.

AGAINST DOCKING.—The Royal Agricultural Society of England has adopted a resolution forbidding horses with docked tails from appearing at its exhibitions.

"I CONSIDER THE REVIEW INDISPENSIBLE, especially to the country veterinarian endeavoring to keep up with the times."—*O. B. French, V. S., Honeoye Falls, N. Y.*

"I CANNOT DO WITHOUT THE REVIEW; it is a welcome visitor and sometimes a great help in time of need. Do not stop it without my order, and you shall have your pay without fail."—*M. C. Livesay, V. S., St. John's, Mich.*

ALEXANDER COCORAN, D. V. S., of Brooklyn, N. Y., died in that city in March of tuberculosis. Deceased was a graduate of the defunct Columbia Veterinary College, and conducted a shoeing forge in conjunction with his practice.

"I AM MUCH PLEASED WITH THE REVIEW.—Any assistance I can render your valuable journal I will cheerfully give."—*R. V. Smith, D. V. S., Frederick, Md.* [See that your neighboring fellow-veterinarian also subscribes.—ED.]

"I VERY MUCH PRIZE THE REVIEW, and can hardly wait until it reaches me from month to month. How any veterinarian can afford to be without such a valuable journal, especially in this far West, I cannot see. It is worth many times its cost."—*D. D. Keeler, V. S., Salem, Oregon.*

A VETERINARIAN COMMITS SUICIDE.—While temporarily insane, Joseph R. Hodgson, Sr., D. V. S., of Brooklyn, N. Y., shot himself through the temple in the stables of the American Transportation Co., a corporation for which he had been until recently veterinarian for a number of years.

DR. W. H. DALRYMPLE, of Baton Rouge, La., read a paper before the Louisiana Society of Naturalists at New Orleans, April 7, entitled "The Veterinarian as a Naturalist." It is in our hands for publication when opportunity affords.

THE clinic of the New York County Veterinary Medical Association, on April 11th, consisted in a demonstration of the operation of median neurectomy by Dr. Charles E. Clayton, at the American Veterinary College Hospital. About twenty-five members were present and many were the compliments paid the operator. It was for the relief of lameness caused by a cartilaginous quittor.

THE United States Department of Agriculture has arranged with Prof. Curtiss, of the Iowa Experiment Station, to collect information and data while abroad for the revision of the recent horse book issued by the Government. Secretary Wilson desires to keep the information in that publication as fresh and up to date as the facilities and appropriations of his department will permit, and Prof. Curtiss, who sailed April 1 on his journey, expects to obtain much data while abroad that will be interesting and important to our breeders.

MUSIC AS A CAUSE OF DEATH.—An exchange says: "Music caused the death of a beautiful three-year-old filly at Florence, Ala., the other day. A farmer drove the valuable young mare into town, and as he was driving up the principal street a brass band suddenly struck up its blatant music. The mare had that she dropped dead in the shafts of the trap. A veterinary surgeon who examined the carcass declared that the mare had died of heart failure, due to excitement caused by the sound of the unaccustomed music of a brass band."

A NUMBER OF CHANGES have taken place in the personnel of the meat inspection force at Missouri River points. Dr. John P. O'Leary has been transferred to Boston, and the change has relieved if not entirely cured an extreme case of homesickness. Dr. Richard Blanche has been transferred from the Meat Inspection to the Quarantine Division owing to ill health, and has been consigned to El Paso, Texas. Dr. James Otterman has been transferred from St. Joseph to Kansas City. Dr. W. A. Heck is transferred from St. Joseph, Mo., to Sioux City, Ia.

DR. W. T. MONSARRAT GOES TO MANILA.—In a private letter dated Honolulu, H. I., March 25, 1899, Dr. Monsarrat writes as follows: "I go from here on the 28th inst., on the mule transport *Conemaugh*, for Manila, P. I., as one of the veterinarians in charge of stock. We will carry some 300 mules, and

they think it is too much for one veterinarian, so they have engaged me to go. Dr. Welch came from San Francisco with them. I sincerely hope we will have good luck and do well with the stock. It is hard to say, as we will be very much cramped for room, and will have a 21 to 24 days voyage. I will return to Honolulu in the course of two or three months. Dr. Plummer is still at the Presidio, Cal., and not in Manila, as I saw in the REVIEW. I might write you an account of the life on a mule ship."

WHAT A SUBSCRIBER WANTS TO KNOW.—A correspondent using the *nom de plume* of "Subscriber" writes as follows: "Of late I notice quite a number of writers on flatulent colic in the REVIEW, and it appears that all lack a knowledge of treatment, as in nearly every case they lose the horse. As a subscriber to the REVIEW, I think it would be a good turn on your part if you would make known to your readers the best treatment in existence for flatulent colic, as there appears to be a lack of knowledge of the proper drugs to expel the gas and arrest fermentation of the stomach without the use of the trocar." "Subscriber" will bear in mind that the REVIEW editors are not possessed of knowledge upon this subject which is not accessible to all members of the profession, and that they are merely collectors of the observations and experiences of others, coupled with those of their own. We refer him to the legend which has for so long adorned the heading of the department of "Reports of Cases."

MISSOURI FARMERS' INSTITUTES.—The Missouri State Board of Agriculture is a very progressive department, if one may judge by its programme of meetings for the past autumn, as well as the variety of subjects discussed, and the cordial manner in which it addresses its constituents. The meetings continue for two days at each point, and three sessions are held each day. For October and November forty meetings were announced, and the subjects included questions pertaining to every phase of agricultural and live stock industries. State Veterinarian T. E. White was almost compelled to eclipse the cyclonic campaign of Candidate Bryan, as the programme made the following announcement: "Dr. T. E. White, State Veterinarian, will attend all the meetings, and talk upon the State Live Stock Sanitary Service, diseases of stock and the breeding of stock from a sanitary standpoint." If it were a lesser personage than the versatile White we would suppose that there was a misprint in the announcement.

THE WONDER IS IT LIVED SO LONG.—*St. Louis, Mo., Nov. 12.*—Despite the skill of nineteen veterinary surgeons and four of the best physicians in St. Louis, Movie, handsome King Charles spaniel belonging to Mrs. Emma Parker, of 1009 North Channing Avenue, died Wednesday. It was buried yesterday with more honors than many people pay to a member of the family. The dog was wrapped in a white shroud, carefully placed in a coffin and buried in St. Louis county. All the women friends of Mrs. Parker attended the funeral. A post-mortem examination revealed the cause of death as peach stones. Movie had been ill several months. When the doctors could not discover his ailment, Mrs. Parker applied to a Christian scientist. The latter wanted \$3 for a book on the doctrine. Mrs. Parker was willing to pay the money, but she could not digest the book, so she had to abandon hope of Christian Science. She received letters from persons all over the country suggesting methods of treating the pet dog. Among these was a note from Mrs. J. R. Cohick, of Tuckahoe, N. Y. Each had a "sure cure," but it always failed to cure poor Movie.

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BACK NUMBERS REVIEWS WANTED AND FOR SALE.

In making up my REVIEWS to be bound I am short of the following numbers: Vol. XIII, July, September, October (1889). As I cannot obtain these from the publishers, I will give the regular rates or a slight advance, or will exchange any of the following which are duplicated in my file: Vol. XIV, October (1890); Vol. XIX, February, March, and April (1896). Address ROBERT W. ELLIS, D. V. S., 509 W. 152d Street, New York City.

AMERICAN VETERINARY REVIEW.

JUNE, 1899.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

EUROPEAN CHRONICLES.

EPIZOOTIC ABORTION IN COWS.—This affection is one which in many establishments occasions by its presence great losses. Infectious in its nature when it occurs in a barn, the majority of the occupants are very likely to suffer by it, and many of the treatments that have been recommended to arrest it have failed to give the results that were expected.

Scientists all over the world have turned their attention to it—bacteriologists to find its true nature, and pathologists a mode of treatment, prophylactic principally.

Prof. Lignières some time ago presented to the Société des Agriculteurs de France, a paper upon the subject, and on a prophylactic treatment which had given him excellent results upon females of his laboratories. After renewing his experiments on cows, and obtaining very favorable results, he made a second report, the importance of which cannot fail of attention. It will be found in the pages of this issue of the REVIEW.

The advantages that the treatment offers are such that should it prove successful on trial, Prof. Lignières will certainly have rendered a great service to dairymen. The treatment which is recommended is very simple, consisting in intramuscular injections, administered every few days, of an oily solution of turpinol, which is a derivative of terebinthina, and is already recommended in pulmonary and bronchial affections. One of the objections to the treatment is that it is rather long,

but as it is simple and harmless, it can be left to laymen to apply it.

Those of our friends that will try turpinol will kindly favor us with the results that they may obtain.

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PARALYSIS OF THE PENIS.—We do not know with certainty what is the opinion of the majority of our friends in the United States in relation to this subject, but the experience that we had with the cases that we met has made us believe that paralysis of the penis was in the majority of cases, if not in all, of infectious nature. We remember how they were frequent during the epizootics of spinal and cerebro-spinal meningitis that prevailed some years ago in New York. How troublesome they were! How we were looking for them and guarding against their appearance. In fact, it is upon some of these that we had first the opportunity to perform amputation with suture to the prepuce of the everted incised urethra.

We found that to a great extent the same opinion prevailed amongst the majority of practitioners on this side of the Atlantic, and that for many paralysis of the penis is often the sequel of serious infectious diseases, tedious lung affections, infectious pneumonia, etc.

Prof. Barrier, at the Société Centrale, presented, a while ago, a paper on this subject, in which he gave it as his opinion that paralysis of the penis was in general the result of traumatism—and of a peculiar traumatism—a violent kick on the perineum, applied when to help a horse that is lying down, to get up, his tail is pulled upward. A tail pulled, and a kick on the perineum! To support his theory, the learned professor related minutely the result of observations and of very careful dissection he has made on cases suffering from paralysis of the penis, from the causes above named, and in which he has found marked lesion of the perinean nerves.

While other interesting remarks might be made on the necessary conditions that might exist on the possibility of the “application of the specified cause, the kick,” it is certain that

an important question is raised and which veterinarians ought to try to settle by dissection and careful examination of the correct origin and final anatomical condition of the organs involved.

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PUSTULAR DERMATITIS.—The season for clipping horses will soon return,—and with it, no doubt, an affection of the skin, which we remember gave us a great deal of anxiety. In a large fashionable establishment where saddle horses only were kept, we have had for years a cutaneous eruption which was not only troublesome by itself, but was rendered more so by the impatience of the owners, who were in many instances unable to ride their horses, as the eruption very often prevented the application of the saddle. The disease was sure to appear, once a horse was clipped, and *clipped with the most modern machine*,—one to-day, four or five the next, and, in fact, all that had been clipped with the same instrument.

It was a parasitic disease evidently, and its manifestations were very alarming with a few animals. Sometimes a little pimple, followed by a slight oozing, formation of a scab, under which a small granulating surface existed. In other cases several of these pimples would gather; the discharge would be abundant, and regular ulcerations, with somewhat ragged ulcers, remained. It was not uncommon to find inflammation of the skin quite extensive, and the inflammation becoming involved gave rise to regular farcinous (?) cords, which sometimes would be accompanied with suppuration of one or more ganglions. It looked much like farcy. They were, however, nothing else than lymphangitic, pseudo-farcinous eruptions, which Prof. Trasbot has had opportunities to observe, and for which he proposes the name of "Pustular Dermatitis."

Cadiot says that the trouble is not new on the Continent. That it comes from Canada, and after arriving in England reached Germany. Whether it comes from Canada it matters little; we certainly have it in the States. Nocard tells us that it is due to a microbe, and we are positive that the clipping

machine being a means of transport, the prophylaxy is indicated, and we would suggest to our friends to resort to it. See that the clipper does not infect your horse.

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RABIES IN EGYPT.—Decidedly legends die out, as the *Semaine Vétérinaire* informs us that dogs in Egypt are becoming rabid just as well as European and American doggies do. It is to English importation that the disease is traced. A terrier landed in Egypt, in a traveling excursion to see the pyramids, had become rabid and died after inoculating several of his kind. In the *Annales de Belgique* it has been stated that there were no positive proofs that rabies existed before this. But old writings insist on the danger of the bites of snakes, alligators or dogs. In the *Médecine Moderne* I read the story of a man who, having been condemned to die from the bite of one of those animals, killed the snake, crushed the alligator, but died from the bites of the dog.

It is stated that actually the treatment of the bite of a rabid animal in high Egypt is to kill the dog, extract his spinal cord and with earth make a paste which is applied over the whole body of a sufferer. Sometimes the hairs of the dog are burnt and the wound of the man dressed with the ashes. Arabs and people from the Soudan eat the raw liver of the dog. In low Egypt an old remedy having for base a blistering insect, the *kylabris unctata*, is used. "They are decidedly behind time in Egypt."

PROFESSIONAL PHILANTHROPY.

Under this heading in a recent issue (February, 1899—Vol. XXII, page 733) we drew the attention of our confrères to the advantages that might be derived by the organization of an association similar to the one existing in the United States under the name of the "Physicians' Mutual Benefit Association," and to that of France, the "Association Générale des Vétérinaires." After presenting our suggestions, we asked the comments of our

professional friends, requesting their opinions or objections. To this date we have heard nothing.

Feeling, as we do, that much good can be done to all, while living, or to our families after we have gone to the land of everlasting rest, we take this occasion to refresh the minds of the members of the profession, who, we believe, have merely overlooked the question through the numerous cares of active practice.

Of course, to a certain extent we were not surprised at the apparent indifference that our first request received; and we fancy that if even a few among us would heartily take the matter in hand, the difficulties that may present themselves may prove very discouraging at first. Is this a reason not to try it?

Philanthropic ideas are not of a very general human tendency, and their realization means very often not only insurmountable obstacles, but also very unpleasant and unsatisfactory results for those who have promoted them. What of that, if the object is good, and the will for success is there?

Our object is not to benefit a few—it is for the good of all. It is not for the welfare and relief of any of us only when we live and are temporarily or perhaps for our entire professional life disabled; it is also, and, in many instances, principally, for those that we may leave after us.

How many of our friends could some of us name, who were taken off suddenly and left their wives, their homes, penniless. How many could we also recall who have become unable to continue the work of their practice from disease or accidental causes, and have remained for their families useless burdens, invalids to care for, without being able to help them. Are not those sufficient reasons to make the attempt?

The Physicians' Mutual Association of New York counts to-day 1451 regular members, and hopes to reach 2000 before a few years have passed. To-day, after twenty odd years of existence, it gives to the family of each member \$1000 at his death.

Will the veterinarians of America remain blind to the good

that such an association may do? Will they refuse even to discuss the feasibility of its organization? We cannot believe it, and renew our request for opinions, remarks and objections.

A. L.

VETERINARY SERGEANTS.

The lavishly colored bill-posters of the U. S. A. Recruiting Bureau, to be seen in and about New York in post-offices and other public buildings, have the evident purpose to catch the imagination of simple young men to become the proud bearers of so handsome a uniform. Besides the colored pictures, there are given, in a scale below, the different ranks attainable by enlisted men, from the sergeant-major, saddler, sergeant, farrier, cook, etc., down to the private, with the monthly pay of each. In this company we find enumerated in the artillery-arm: *veterinary sergeants*, \$25 per month.

This charge being new to us, we instituted a research at a military post where artillery is stationed, and were informed that such is the new title given to the former "farriers," and that the veterinary sergeants are not expected to be veterinary graduates.

The REVIEW believes that here an error has been perpetrated by some one low in authority, and that the War Department should be immediately informed of this thoughtless offense to the American veterinary profession. Certainly the artillery is entitled to a veterinary surgeon besides the farriers, who can be made quite useful nurses under his direction. As far as the above unauthorized innovation is concerned—unauthorized by Congress—it seems incredible that after the recent deliberations of Congress in regard to our status in the army, the well-informed War Department officials would wantonly expose themselves to our criticism. At any rate, here is again a theme for the American Veterinary Medical Association at its next annual session.

O. S.

PRESERVING OUR STATE LAWS.

The Minnesota veterinarians have recently had some experience in defending their practice act. They have reason to feel proud of the veterinary practice act. As the law now stands only graduates of recognized colleges can come before the board for examination and registration. A bill was introduced in the last legislature which would have opened this act in a bad way and would have compelled the examining board to register non-graduates under certain conditions which hundreds of them could easily have complied with. This bill was carried along on its way through the legislature so quietly that it was not discovered until it had passed the Senate and was well on its way through the lower house. A quick hard fight made by the members of the State association defeated the bill, but it was a close call. Every State that has a good practice act should have a committee of veterinarians appointed residing near the capitol city, appointed for the express purpose of watching the bills in the legislature. Such a course by the New York State Veterinary Medical Society has been the means of saving the laws in the Empire State from pernicious amendments many times every year.

THE SUDDEN DEATH OF EX-GOVERNOR FLOWER, of New York, robs veterinary science of a good friend. His recent gift of \$5000 for a library for the New York State Veterinary College is the most munificent ever bestowed upon our unaided profession, unless the amount donated by Mr. Lippincott to endow the canine infirmary of the University of Pennsylvania was greater. Possessed of an immense fortune, an enthusiastic lover of domestic animals in the higher sense, it is probable that had he lived to a ripe old age he would have done even more for this science when closing his earthly accounts in a manner befitting his tastes.

ORIGINAL ARTICLES.

SOME DISEASES OF ANIMALS THAT ARE TRANSMISSIBLE TO MAN.*

BY COLEMAN NOCKOLDS, V. S., M. D., GRAND RAPIDS, MICH.

It has been known for many ages that certain diseases of animals could be transmitted to man. It is not a new subject, but, nevertheless, it is an important as well as interesting one to us as medical students. It is to be regretted that the close relation of some diseases of man and the lower animals has not been as thoroughly understood by the medical and veterinary professions as they should be, for the benefit of both man and animals. Most probably the chief reason that this subject has not been more fully studied, except by comparatively few members of both professions, is the fact that until the study of bacteriology became prominent the true causes of many of the contagious diseases were not known, and many of what we now know to be one and the same condition in man and animals were believed to be entirely separate, both as regards the etiological factors and the pathological conditions. Every day there is being more and more interest taken in this subject by men of ability, and it would be of great benefit to the public at large, as well as the medical and veterinary practitioner, if there were more interest manifested and if this broad field of investigation were more fully dealt with. Some medical men think it beneath their notice to take any interest in a sick cow or a dog that has worms, yet for the benefit of their patient it would be better if they investigated more fully some of those ailments amongst the lower animals, and it is possible that upon a careful inquiry and examination, they could trace the cause of a sickness from which one of their patients is suffering to the family cow or horse, and maybe even the pig or fowl. It is not necessary for a physician to be a practicing veterinary surgeon to under-

* Read before the Students' Society of the Grand Rapids Medical College, March 17, 1899.

stand a few of those diseases of animals that are so closely related to diseases of human beings. Diseases that can be prevented that are both dangerous and deadly, and that are directly or indirectly transmissible from the lower animals to man.

The transmissibility of certain diseases of the lower animals to man was known to the ancient Egyptians, and they believed that leprosy and other loathsome maladies were caused by eating meat from hogs and other unclean animals. Moses prescribed rigid laws prohibiting the Israelites from eating meat from diseased animals. Some of the laws made by the Romans and Greeks relating to veterinary sanitation are in use even to-day. They separated such animals from healthy ones and ordered the burning of the carcasses of affected animals. In the 8th century church laws forbade the use of diseased meat. In 1248, enlightened men, recognizing the dangers of hydrophobia, forbade the consumption of meat of animals that had been killed by dogs and wolves. It is not my intention to take up all the evening going over the history of contagious diseases of man and beast; it is enough to say that various laws have been in existence since the earliest ages in different countries forbidding the use of diseased meat for food and for the prevention of infection of man by diseases from the lower animals. In the present century investigation of the transmissibility of diseases of the lower animals to man has shown the important relation of some of these diseases to our food supply. It has also convinced the investigators of the necessity of the study of comparative medicine to properly deal with our foods of animal origin and to effectually combat and prevent many of those diseases communicable to man. Modern medicine tends to the prevention of diseases through a better understanding of the means of transmission and perpetuation. With these ends in view some of our medical colleges have established chairs of comparative medicine. It is leading to appreciation of the necessity of establishing a more competent system of sanitary officers that shall properly guard the animal food supply of our people and promote the health of our animals by judicious State laws.

Many of the States are taking active measures in the control and suppression of contagious diseases of domesticated animals.

There are many diseases which are transmissible from animal to man. I will briefly mention a few of the more important ones. Tuberculosis causes about one-seventh of all deaths of mankind. It kills more people than all the wars and outbreaks of cholera, yellow fever and small-pox combined. In 1882 Koch discovered the bacillus tuberculosis, the cause of the disease.

Tuberculosis of man, cattle, and other animals is one and the same disease and due to bacillus tuberculosis. The germ may be in any or every tissue of the body. The disease takes the same form in animals as in man; it is characterized by the formation of tubercles in one or more parts of the system and by its destructive tendency. There are not a few cases on record where a cow affected with the disease has been introduced into a herd hitherto free from it and most of the animals have taken the disease.

Tuberculosis is very common amongst cattle, especially milch cows of the more delicate breeds, but no breed is immune. In some localities 80 per cent. are affected. The animals most liable to the disease after cattle are the pig, sheep and wild animals in confinement. Dogs become affected through licking sputum containing the germs. Horses are sometimes victims of tuberculosis, but not commonly.

Tuberculosis can be contracted by man from animals by eating the flesh, drinking the milk or by the same means as it is transmitted from one person to another, viz., by respiratory or alimentary tract or inoculation. It is mentioned in the third book of Moses, Chapter XXII, that he forbade the consumption of the flesh of animals affected with tuberculosis. This disease has been recognized in most countries and at all periods, although the deadly nature of it was not fully known until late years.

During the 11th and 12th centuries Arabian and Hebrew doctors wrote of it. In the 9th century church laws forbade the use of meat of affected animals. Similar measures were taken in different countries at different times. It is reported that in

1677, 12 students at a Lepez school died of eating affected meat. It has been proven beyond a doubt that animals, especially cows suffering from tuberculosis, are dangerous to human life. Stamping out the disease amongst animals would materially lessen the mortality from consumption amongst the human race.

The clinical diagnosis of tuberculosis amongst cattle is not to be relied upon. But there are methods of diagnosing this disease amongst cattle which are absolutely positive. Symptoms which should be looked upon with suspicion are a cough, which is of a short, deep character; it is more frequent in the morning when the cow first begins to move about. Moving and drinking bring on an attack of coughing; if the disease is far advanced the cough is painful, spasmodic and dry; there is hardly any discharge. When a large part of the lung becomes involved the animal wheezes during inspiration. Upon percussion there is a dull note over the region of large tubercular deposits and tympanitic sound over cavities wasting away, shortness of breath, anorexia, hide bound, decrease in milk secretion, remittent or intermittent fever. If the mammary gland is affected (and perhaps that is the form most dangerous to man) it will be swollen, hard and nodular; with any or all of these symptoms we must look upon the case with suspicion.

The test for tuberculosis which is most commonly used is known as the tuberculin test. Anti-tubercular serum may be considered as a glycerine extract of the tubercular germ. It contains no living germs of tuberculosis and therefore does not communicate the disease to healthy animals. The milk of a cow is unaffected by its use, and it does not interfere with gestation, even if the cow is ready to calve. It is manufactured upon a large scale by some of the manufacturing chemists, as are also other serums, diphtheria, tetanus anti-toxin, streptococcus, mallein, etc. The method of using the tuberculin test is first of all to get the average temperature of animal to be tested, which can be done by taking the temperature per rectum about every four hours for twenty-four hours before applying the serum. Then inject the serum subcutaneously at any convenient point

under the skin of the shoulder or at your discretion. If within twenty-four hours after the injection has been made the temperature should rise more than two degrees, you may be pretty sure that the animal is suffering from tuberculosis. The dose of tuberculin to be used varies; some manufacturers advise more than others, but directions generally can be had with the medicament. It is not advisable to apply the test while a cow is in heat, or to change the habits of the animal during the time of using the test. Tuberculin has been advocated for the cure of consumption among human patients, but no doubt those cases reported as cures from its use were not tuberculosis at all, as experience amongst the lower animals shows that the application of tuberculin, even to a mild case of tuberculosis, causes the disease to manifest itself in the most acute form. Of course, the most positive method of diagnosing tuberculosis is by locating the germ. It is often hard to do in the lower animals, but examine the discharge from mouth, nose, vagina, rectum or milk by the ordinary methods; to the milk add a little acetic acid, and then strain and examine.

Another method is by inoculating a small animal, as the guinea-pig. There would be found upon post-mortem all the pathological lesions of tuberculosis, and the bacilli can be located by usual methods in the tissues. Suspected cases should be reported to either the State or local board of health, who will in most cases make necessary inquiries and examination and order the destruction and disposal of the affected animals.

Hydrophobia or rabies: A contagious disease of the canine, which can be transmitted to man. Generally man becomes infected through being bitten by a rabid dog directly or by another animal that has been bitten by a rabid dog. As you know, this disease is quite common in this and other countries. Proper regulations not only lessen its frequency, but may completely suppress it, as has been shown in Sweden, where not one death has occurred since 1870, though the previous mortality was eight to ten persons yearly.

Rabies in the dog may take two forms, the mute or the

furious. In the furious form from twelve hours to two days after the animal has been bitten there is depression ; the animal is gloomy and anxious. The dog no longer obeys his master. Soon he becomes defiant, restless and cross (in rare cases they are extra affectionate for a few days), the animal licks and bites the wound, refuses food, and bites anything it comes in contact with ; it swallows foreign bodies, as pebbles, nails, pieces of wood, etc. ; it snaps at the empty air and runs about biting everything that it comes in contact with ; often it bites foreign bodies so hard as to fracture its jaw. It howls with a peculiar, unnatural coarse note, which ends in a higher key. The head is hot and fiery, the eye wild and glazed, the larynx paralyzed, which causes ptyalism. The mouth is generally kept open. It becomes emaciated and gradually gets weaker and weaker, and dies about the tenth day. In the mute form there is no excitement, paralysis comes on quickly, especially of the lower jaw, and the animal dies about the third day. All animals can become affected with hydrophobia by bites from a rabid animal. The cat is the most dangerous to man, because of its claws. They will jump on the face and attempt to claw and bite it. They are no longer afraid of dogs. A person may be bitten and the wound heal completely, and the symptoms of the disease not develop for weeks or months. The poison that causes it is found in its most concentrated form in the brain ; in a more dilute form in the saliva, tears, milk and pancreatic juice, perhaps in small quantities in the blood.

If consulted by or called to see a patient who has been bitten by a rabid dog one of the first questions of the physician ought to be : Where is the dog ? If that dog is living it should be confined and the symptoms watched ; if hydrophobia develops within three weeks there is yet ample time for the patient to receive treatment. Very likely what was taken for madness in the dog was merely one or more symptoms of some other disease ; if so the patient should be informed and all fears set at rest as concerns hydrophobia. There is no doubt but that many people bitten by dogs supposed to be suffering from rabies worry

and fret themselves into a dangerous illness or even to death, when if they had been informed that the animal was not mad would never have had a day's sickness; however, the wound should always be cauterized at the earliest opportunity. It does no harm and may be the means of preventing further trouble.

If rabies should develop in the dog that has been confined, no time should be lost in sending the person bitten to one of the Pasteur institutes for treatment. Pasteur discovered that a serum containing an attenuated toxin derived from the brain and cord of an animal suffering from rabies would prevent the occurrence of the disease in those who have been bitten by animals undoubtedly rabid. On this principle Pasteur institutes have been established in which preventive inoculations are made with quite satisfactory results. It has been impossible to estimate how many cases of hydrophobia occur in this country during the year, but in the older countries where records are kept, it was found that in three years in Belgium, England, France, and Germany there were 6538 cases.

The death rate without local treatment is 83 per cent. The death rate with local treatment is 33 per cent. The death rate with Pasteur treatment is 0.6 per cent. This speaks for itself. The preventive measures taken in countries where hydrophobia is almost stamped out are muzzling of all dogs out on public thoroughfares, especially during hot weather, high dog tax, killing off all stray and ownerless dogs and public drinking troughs for dogs. I might add that a system of preventive inoculation of all dogs would still tend to reduce the number of cases of hydrophobia.

Glanders, a contagious disease affecting the horse, ass and mule, is transmissible to man. This disease is caused by the *mallisti bacillus*. It is characterized by a discharge from the nose, the formation of nodules in various parts of the body. The lymphatics are the organs most frequently attacked. The lesions may be external or internal or both. The animal becomes emaciated, looks unthrifty, although in some cases there may be no visible symptoms except perhaps a slight discharge

from the nostrils (latent glanders). The bacillus is contained in the discharge and man may become infected by the discharge coming in contact with abrasions on the skin or by handling articles which may have come in contact with the diseased animal and thus become infected, articles such as harness, blankets, mangers, drinking troughs, etc. The discharge, which is constantly secreted and often in large quantities, acts as a perpetual source of contagion, not only while in the fluid state, but also when dry it retains its virulence for a long time. Persons who handle glanderous animals or in any way come in contact with them are liable to contract the disease. To diagnosticate glanders when the clinical symptoms are not sufficiently developed use mallein, which is an extract of the pure culture of the bacilli of glanders in the same way and by the same methods as those used when applying the tuberculin test or by the methods of staining or inoculation mentioned in regard to tuberculosis. All glandered horses ought to be destroyed and their carcasses burned.

Anthrax is a contagious febrile disease produced by the entrance of the anthracis bacillus into the system. It affects all domesticated animals and most wild animals and is readily transmitted to man. In 1617 this disease was prevalent in the bovine species in Europe and killed 60,000 people.

Anthrax is a miasmatic disease. It exists in certain localities and breaks out at certain periods each year. The animals most commonly affected are cattle, sheep and pigs. It takes three forms: the hyper-acute, acute, and sub-acute. It is the hyper-acute and the acute forms that generally affect cattle and sheep, and the sub-acute form affects man, pigs and dogs. In the hyper-acute form death occurs quickly, generally within an hour; in the acute about thirty-six hours; in the sub-acute death occurs in about six days. There is intense fever, anorexia, formation of a characteristic tumor, exit of blood from all the natural openings, and after death a rapid decomposition of the cadaver. All the tissues are full of the bacilli, as are the excretions and secretions. In man anthrax takes the sub-acute

form. It is transmitted not only by direct contact, but by the intermediation of insects that have come in contact with the diseased animals.

Animals grazing where carcasses of animals dying of anthrax have been buried are sometimes infected by the spores of germs which have been brought to the surface by earth worms.

From liability of workers in wool to this disease it has been called woolsorters' disease. It is generally called malignant pustule when affecting man, and can be contracted by handling meat, hides, and even leather made from the skins of animals that have been victims of anthrax.

Vaccina, or cow pox, is an eruptive contagious fever of the cow, transmissible to man.

The disease is usually taken from one animal to another by the hands of the milker, clothes, bedding, etc. The virus as contained in the eruption constitutes the well-known vaccine. In 1798 Edward Jenner discovered that by inoculating or vaccinating people with the products of the vesicles of cow-pox, rendered them immune from small-pox. From that time the process has extended over the civilized world, and proved an incalculable boon to humanity. Although cow-pox and small-pox are closely related, investigation has proved that they are not identically the same disease.

Actinomycosis (Lump Jaw): A chronic, infective disorder affecting cattle and other animals and transmissible to man.

This disease is caused by a vegetable fungus, actinomyces. It is characterized by the formation of neoplasms, most commonly upon the lower jaw, but may form on any part of the system, most generally in the alimentary canal or lungs. The general symptoms of the disease resemble those of pyæmia.

Actinomycosis is transmitted to man by inoculation and the pathological conditions observed in man are identical with those found in cattle. The pig is most commonly affected next to bovines.

Aphthous Fever (Foot-and-Mouth Disease) is an acute infectious disease, affecting chiefly cattle, sheep and pigs, but

other animals may become infected. It is a very active disease and soon spreads over large areas of country. The animals are feverish, and in from three to five days the mucous membrane of the mouth and the integument between the hoofs of cattle swell and little grayish vesicles develop on the edges of the tongue, the lips and gums, and in the cow vesicles appear upon udder and teats. The milk may become of a muddy consistency.

It is not uncommon for this disease to be transmitted to man through direct contact, or to children from drinking the milk, or even through butter or cheese made from the milk from apthous cows.

The consumption of the meat of cattle that are suffering from measles of the ox, a condition caused by the encysting of the bowel, forms of the *tænia saginata* in the muscles and other portions of the body, is the source from which the most common form of the tapeworm, the *tænia saganita*, of man comes.

A measly hog or the disease known as *cysticercus cellulosæ*, is infested with the cyst form of the *tænia solium*. Eating the flesh of a pig so infected will produce the adult *tænia solium* in man, which is especially dangerous because of the liability of man to auto infection, and thus contracting *cysticercus cellulosæ* himself.

Echinococcus of man is a disease in which the larvæ of the *tænia echinococcus* becomes encysted in various tissues, principally the larval. The *tænia echinococcus* is a tapeworm infesting the dog, and the eggs are swallowed by man in drinking water and by other means. The disease in man is not amenable to treatment and eventually proves fatal. Cattle and other animals suffer occasionally from *echinococcus* in this form. *Tænia cucumirena* sometimes gain access to the intestines of man through swallowing the dog flea or louse. It exists in them in its larval form. *Bothriocepholus* later exists in the larval stage in the muscles of the pike and other fish and sometimes exists in the bowels of man due to ingestion of fish containing the larvæ. It is the largest tapeworm which infests man.

Trichinosis is a disease of man caused by the ingestion of

pork containing the encysted larvæ of the *trichina spiralis*, a worm which inhabits the intestines of the pig.

There are many other diseases and conditions of animals which are transmissible to man, such as tetanus, diphtheria, certain fevers, flukes, linæa, titana, soscapli and others. Many of these conditions can be almost entirely prevented by sufficient sanitary police regulations: Meat and milk inspection, by appointing competent men in each district to examine and watch over the animals in that district. For the successful carrying out of preventive medication it will be necessary for the educated veterinary surgeon and physician to work hand in hand. It will be hard to draw the line in the near future where the physician's work leaves off and the work of the veterinary surgeon begins in the great army of disease fighters whose motto will be: "United we succeed, divided we fail in the practice of preventive medicine."

AN ARRANGEMENT FOR MUNICIPAL OWNERSHIP OF SLAUGHTER-HOUSES.

BY LEONARD PEARSON, V. M. D., PHILADELPHIA, PA.

Read before the evening session of the Pennsylvania State Veterinary Medical Association, March, 1899.

The American people are the greatest meat eaters of the world, with the possible exception of the inhabitants of Australia. The beef-eating British consume nearly as much meat per capita as the Americans and after these people we have the following arranged in the order of the amount of meat consumed per capita and per annum: the inhabitants of Sweden, Norway, France, Germany, Belgium and Holland, Austria, Hungary, Russia, Spain and Italy. The average annual consumption of meat in this country is about 115 pounds. The table that I have just given seems to support the assertion that the capacity of a people is indicated largely by the amount of flesh consumed.

Philadelphia uses about 125,000,000 pounds of meat every

year. A great deal of this meat is prepared in Chicago and the other meat-packing centres of the West. But a large proportion of it is prepared in and about Philadelphia. Of the cattle that are slaughtered here, some are steers bred and fed in the West, others are Western bred and Pennsylvania fed and others are young cattle reared in this and neighboring States, while still others are dairy cows that have been fattened for the butcher or they are worn out, thin and oftentimes diseased cows that have become unprofitable for dairy purposes and are not suitable for feeding. In addition, the immediate vicinity supplies a considerable number of bulls and many veal calves.

Part of this meat of local origin is killed in the slaughter-houses of Philadelphia and part of it in the small suburban slaughter-houses or on the farms. The local slaughter-houses vary in capacity, from the little one in the yard back of the retail shop, where but one or two cattle can be handled a day, to the large one in West Philadelphia with a capacity of several hundred. They vary as much in regard to sanitary arrangements, facilities for providing wholesome meat and in cleanliness as they do in size. Some of the meat that is dressed outside of but near to Philadelphia is prepared in improvised slaughter-houses, a corner of the wagon shed or even of the barn yard. Many of the cattle killed in and about Philadelphia come from districts where tuberculosis is very prevalent. Instances have come to light where the owners of tuberculous cattle have sold them to the butcher after it was plainly evident that they were diseased and, clearly, to avoid losing them by death. There are dealers who make a business of going about in dairy sections of this and other States to gather up all of the old, diseased and worn out cows that are able to walk. Such cattle are called "Bolognas" and most of them are probably used in making the sausage that goes by that name.

Some of the smaller slaughter-houses in Philadelphia are of the most filthy and abominable character and should be regarded as nuisances in the neighborhoods in which they exist. Their walls, floors and fixtures are smeared and besmattered

with blood, manure and pieces of fat and meat that appear to have been accumulating since the buildings were erected, years ago. The live cattle are kept in compartments immediately adjoining the rooms in which animals are killed and meat is stored. The cattle are killed at irregular times, occasionally early in the morning or at night, and the methods of dressing the carcass and preparing the meat for market are frequently of a dirty and unwholesome character.

For the purpose of inspecting the meat slaughtered in Philadelphia there are two "meat detectives," who have associated with them two veterinarians to be called in when the detectives find conditions that they consider suspicious. These detectives visit every day as many slaughter-houses as it is possible for them to reach, making a short visit at each one. If, during the time of their visit, they should happen to find diseased organs or diseased meat, the veterinarian is called on for an expert opinion and the meat is condemned, or not, according to his verdict. During the ninety-nine-one-hundredths of the day when the meat inspector is not present the slaughter-houses are not under inspection or control. It cannot be said, therefore, that there is a general system of meat inspection in Philadelphia. The inspectors examine as much meat and as many cattle as it is possible for them to see and are constantly employed. By their efforts a large quantity of dangerous meat is kept out of the market and the health of the public is protected to an important degree, but the force employed by the city is utterly inadequate. I do not wish these remarks to be construed as a criticism of the cities' meat inspectors. It is rather a criticism of the city's meat inspection system, a thing for which the inspectors are not responsible. The need of an efficient and thorough system of meat inspection is discussed by others at this meeting, so that I need only touch upon this portion of the general subject. Since the bacterial origin of many diseases has been demonstrated and the close relationship of some diseases of man to those of animals has been established, the importance of rational meat inspection has been greatly em-

phasized. More than this, it is known that many parasites are transmitted to man through meat, and it is known that meat is composed of fragile compounds that change readily and render meat irritant or toxic unless it is handled in a cleanly, careful way and is kept at a proper temperature. This need for meat inspection is greatest in the portions of the country that have the largest proportion of diseased and worn-out animals that are unfit to become part of the people's food supply.

The need for meat inspection is as great in the eastern part of the United States as it is in many parts of Europe, where it is carried out with the greatest degree of thoroughness and care.

The early meat inspectors of Germany labored under the disadvantage that the meat inspectors of Philadelphia are now forced to encounter. It was soon found, however, that these disadvantages were great enough to prevent meat inspection from making the important contribution to the cause of public health that was expected of it and, after many experiments and much thought, the plan was adopted by about 600 cities, of causing the business of preparing meat-producing animals for food to unite in central establishments, usually the property of the municipality.

The system of municipal slaughter-houses is now so well established in Germany that every city that makes any pretense to progress is supplied with one of these important adjuncts to its sanitary system. Where the cities do not own slaughter-houses, they regulate the business of slaughtering in private slaughter-houses by requiring these establishments to meet a certain standard, and they prescribe the time during which animals may be killed for food, so that the official inspectors may be on hand to examine every animal and carcass. Where the city owns the slaughter-house it requires all slaughtering carried on within its limits to be done in this one establishment. Thus, slaughtering-houses are under the constant supervision of veterinarians, and all meat-producing animals are examined during life and again at the time they are killed and dressed.

Municipal slaughter-houses are in most cases model establishments. They contain all of the latest improvements in construction and all of the approved modern appliances for the rapid, economical, and wholesome preparation and preservation of meat. They are in most cases supplied with smooth cement floors suitably drained. They have brick or tiled walls, hot and cold water, arrangements for rapidly hoisting and moving animals and carcasses, and appropriate and adequate cold storage facilities. They are plentifully illuminated and ventilated and are kept in a condition of perfect cleanliness, and altogether are as different from some of the small, close, dark and ill-smelling little slaughter-houses of Philadelphia as a palace from a hovel.

This system of controlling the meat supply is not confined to Germany alone, but is followed in nearly all parts of Europe and by a number of cities in Great Britain. In this country, the cities of New Orleans and Montgomery have also adopted the municipal abbatoir system and with the most satisfactory results.

When carried out thoroughly and properly the control of the meat supply gives important returns in many ways. It is, first of all, a great protection to the consumers of meat and in the cities in which it has been established, helminthic diseases, meat poisoning and tuberculosis have been very materially restricted. Moreover, the meat that reaches the market is of a more attractive and nutritious character, and can be eaten with confidence and relish. This alone is a great gain. A general system of meat inspection is also of the highest value in controlling the diseases of animals. The statistics as to the prevalence of disease made by meat inspectors are the most complete and valuable that we possess. Another advantage of this practice is that it helps the honest butcher who wishes to furnish nothing but good meat to his customers, because it makes it unnecessary for him to compete with the man who sells carrion. Objections to this plan come from two sources: From the owners of private slaughter-houses, who do not wish to be disturbed, and from people who believe that if all slaughtering

were done in large municipal abbatoirs meat would be more expensive and, therefore, more difficult for the poor man to obtain. As to the first objection, it may be said that *every* advance interferes with earlier arrangements and upsets pre-existing conditions. The stage-coach proprietor and the canal boatman objected to the building of railroads. All labor-saving machinery has been objected to by the people that it has displaced, but reforms that improve general conditions and are good for the public, cannot be permanently halted by the interests of individuals, and history shows that, in the end, the suffering that was prophesied from these changes has not come to pass. But many proprietors of slaughter-houses have at this time large interests and vested rights, that must be respected. If the city of Philadelphia shall ever wish to establish a municipal abbatoir it will not be necessary for all butchers to move into this establishment at once. Those who maintain their private plants in conformity with certain regulations, may be permitted to continue them for a stated period, while the smaller, filthier concerns that cannot be improved and are nuisances, should be forced to discontinue as isolated establishments and go into the large slaughter-house belonging to the city. For the conveniences provided, a reasonable rental should be charged, and those who thus purchase the right to use the facilities of the municipal slaughter-house would be able to carry on their business under the best conditions; conditions that it would be absolutely impossible for most of them to provide at their own expense. They would be enabled to do their work in a proper, cleanly way; they would have the advantage of cold storage facilities to a degree that the individual could not have; they could dispose of their condemned organs and carcasses to better advantage than now; they would have the advantage of easy access to the stock yards and would thus avoid the necessity of driving cattle through the streets, a practice that blocks traffic, frightens people and at times occasions serious accidents.

I believe that if all the meat killed in Philadelphia were pre-

pared in a large central slaughter-house under municipal control there would soon arise a strong demand for this meat. It would be preferred and would make its own market. I see no other way by which the gradual destruction of our local slaughtering industry by the competition from the Western packers can be averted.

Now, as to the second objection to this plan, namely: the allegation that the cost of meat prepared in this way would be increased and the poor man would have greater difficulty in providing meat for his family. This objection is old, it has been made and met in Germany as many times as there are public slaughter-houses, and has been discussed thoroughly by representatives of the meat industry, sanitarians and others.

In 1897 the director of the municipal slaughter-house in Stockholm instituted an extensive inquiry for the purpose of obtaining information on the following points:

1st.—Whether it has been shown that the introduction of municipal slaughter-houses and obligatory inspection of meat brought into the city from outside has made meat more expensive, and, in such case, to what extent has the price been increased.

2d.—Whether the municipal slaughter-house has been an earning institution.

3d.—As to the charges for killing and inspection.

Information on these points was received from 403 cities in Europe and it was found:

1st.—That the price of meat had not become increased by the requirements as to the slaughtering and inspection.

2d.—That the public slaughter-houses were paying institutions.

3d.—That the price of meat depended upon the relation between supply and demand, and especially upon the price of cattle.

4th.—That the quality of the meat improved after the public slaughter-houses were opened, so that there was relatively a diminution in price.

5th.—That sometimes the price of meat went up immediately after the opening of the slaughter-house, or that the butchers tried to increase the price, but very soon, as a result of competition, the price returned to its former level.

6th.—That in cities with public slaughter-houses and obligatory inspection the price of meat was not higher than in neighboring cities without these institutions.

7th.—That the freedom of occupation was increased rather than diminished after municipal slaughter-houses were erected, because every one who fulfilled the public requirements had the privilege to use the establishment. (Previously meat producing animals could be slaughtered only by those who possessed the necessary premises and appliances.)

This extensive investigation has shown what economists would expect, but what there has been a great tendency to doubt. It has shown that, by the species of co-operation that must be practiced where large, fully equipped and conveniently arranged municipal slaughter-houses are provided, meat can be prepared at a lower cost than where it is prepared in a multitude of small slaughter-houses.

EPIZOOTIC ABORTION IN COWS--TREATMENT.

BY PROF. LIGNIERES, FRANCE.

If several pregnant female guinea-pigs, four or five weeks in that condition, are inoculated under the skin with 1 or $\frac{1}{2}$ c.c. of culture of the bacillus, they regularly abort two or five days after the inoculation, except if the day after the operation injections of 1 c.c. of an oily solution of turpinol to one-tenth are made; then most of the treated animals do not abort.

These results have decided me to try this treatment on cows; and I was fortunate enough to obtain the assistance of a veterinarian who carried out the experiments under my direction.

First Experiment.—Stable of Mr. F.: Abortion began in August, 1896; 7 out of 10 cows had aborted. In 1897 the disease returns, but injections of turpinol are started the end of October of

the same year. They are made in doses of 10 c.c. every two days. Out of 8 cows treated, 7 delivered well ; one only aborted for the second time when eight months gone. Since that, abortion has entirely stopped and the owner reports the calves in excellent condition.

Second Experiment.—Stable of Mr. G., containing 16 cows. Abortion appears in the month of June, 1897. All the cows aborted between June 1st and November 15th. They were 6 and 7½ months pregnant. Injections are begun November, 1897, as follows : During three months every second day, three months every third day, two months every fourth. The 16 cows, pregnant or not, were treated, and of that number, five were sold as nymphomanes ; one not pregnant is still in the barn, one aborted in her eighth month. The other nine calved at term ; the calves are fine.

Third Experiment.—Herd of 27 good milking cows. No fresh cows have been introduced in the stable for two years, but three calves, four months of age, coming from an infected stable, have been placed with them. Abortion began end of August, 1897. Until April 1, 1898, 18 cows have dropped their calves. It was their first, second or third calf. Injections were begun April 1, 1898, and made regularly every three days ; they are still continued to this date (December, 1898). From April 1st to June 1st, five cows more aborted. Since no further trouble has occurred ; 15 cows that had aborted before have dropped very healthy calves ; out of these cows nine are now pregnant one or two months ; the other three have not been mounted. Let us add that four of the cows that aborted between April 1st and June 1st are now pregnant and to all appearances will carry to the end. Two cows were sold as nymphomanes, not from tuberculosis, as proved by tuberculin.

Modus Operandi.—The solution is made as follows : Turpinol, 1 part ; oil, 9. The liquid is injected every three or four days, 10 c.c. for a dose, not under the skin, but in the muscles, those of the neck, shoulder or thigh. As much as possible successive injections will be made in different parts.

Abscesses never form ; there is sometimes a small œdematous swelling. The cows stand the operation very well, and the taste of the milk is not altered. Evidently the treatment is long, but it is so simple that a layman can readily be initiated with it. Spirits of turpentine might be used instead of turpinol, but would give rise to great irritation and would probably not give as good results.

TUMORS.

BY ROBERT FORMAD, V. M. D., PHILADELPHIA, PA.

Read at the annual meeting of the Pennsylvania State Veterinary Medical Association,
March, 1899.

The study of tumors constitutes one of the most interesting as well as useful chapters in the study of pathology. The interest is not only from the standpoint of teaching or the examination room, but also from the practical application for the busy practitioner and surgeon who is concerned not in the latest views, not in the charms of the microscopical picture that a section of the tumor shows to the pathologist, but is more interested whether that tumor will return or not return after removal, and whether that tumor has given or not given any metastasis to internal organs, and after the operation has been successfully performed the metastatic nodules continue to grow with renewed vigor and spoil the result of a successful operation. Your Committee of Arrangements in assigning me to give this demonstration, impressed in the most forcible manner that this should be not a scientific lecture, for which you have no time, but a demonstration, and in presenting to you this subject, I will endeavor to make it as practicable as possible. A few brief remarks, definitions, and classifications are, however, indispensable to treat the subject in a systematic manner. These remarks, I hope, will show that even the most scientific surgeon in performing an operation does not need to hold the scalpel in one hand and the microscope in the other to have success, but every surgeon before plunging the knife into the tissues even of the dumb

beast, must bear in mind that there are benign and malignant tumors, and that the recidivety would greatly influence his prognosis, even if he cannot recall the exact microscopical picture. When we want to treat disease it is essential to observe and know not only the symptoms and peculiarity, but also the name of the disease to which the symptoms belong, and when we wish to remove a tumor we must remember the kinds of tumors that pathology teaches. Tumors are studied under the heading of complete morbid processes, termed pseudo formations, leading to the development of useless tissue in contrast to regeneration, the term new tissue formation.

Definition—(a) Clinical: A tumor is a swelling developed without the symptom of inflammation; it is permanent and has a tendency to stay and increase in size. (b) Anatomical: A tumor is a multiplication of preëxisting tissue above physiological limits, abnormal as to space and tissue.

Synonyms: Hyperplasia, swelling, neoformation, neoplasm.

Inflammation neoformation may resemble tumors to such an extent as to make the distinction an exceedingly difficult one, even on morphological and physiological bases. Tumors originate spontaneously, but do not disappear so, while inflammatory neoformations do not appear spontaneously, but may disappear so.

Pathogenesis of Tumors.—Numerous theories have been advanced from time to time to explain the causes of tumors, but up to the present-day our theories have been hypotheses failing to explain the causation of tumors.

1. Dyscrasia or diathesis, theory advanced by Billroth and older writers, described formation of tumors to a diseased state of the fluids of the body and an inherited peculiarity; if this be true, however, the question naturally would arise, when did the first tumor start, and if Adam was created with the first tumor it is strange that a tumory nation had not been developed.

2. The mechanical or inflammatory theory comes next in existence and ascribes the formation of tumors due to irritants—*e. g.*, epithelioma in pipe smokers, and to injuries. Clinical

observations show this to be true in a number of sarcomas and carcinomas. But not every injury leads to tumors ; if it would, not many of our forefathers would have reached a good old age, as the mode of bringing up in those days was quite different and more forcible than now. Athletics would never have reached the present state of development ; we would be deprived of the pleasure of seeing the pleasant countenances of Dr. John Adams and Dr. Sensman if this mechanical theory were unimpeachable.

3. The embryonal or evolutionary theory of Cohnheim ascribes the formation of tumors to errors of development during embryonal life when certain cells having been displaced develop the tissue for which they were intended, even if these cells have been moved to another locality ; it is the only true way in which we can account for the formation of certain congenital tumors, as the dermoid cysts or certain mixed tumors. It has more limited application than the preceding ones.

4. Nervous theory ascribes the formation of tumors to disturbance in the trophic functions of the nervous system, but is more of an imaginary hypothesis than a reality.

5. Parasitic theory assumes that parasites are responsible for the formation of tumors, but it will be hypothetical, as the parasites are not demonstrated.

CLASSIFICATION OF TUMORS.

1. By nature (which means, whether they are benign or malignant).

2. By shape ; this depends upon the manner of growth, their situation and the influence of the surrounding parts.

3. By structure or histogenetic classification, which is most convenient for a systematic study in the laboratory.

The classification by nature is into benign and malignant. The former do not affect the general health of the patient in any notable degree, and may only be dangerous mainly by reason of pressure on vital structure or the secondary causes (hæmorrhage, suppuration, softening), to which they are sometimes liable. Malignant tumors disturb the general health from

the first and in addition tend to recur after removal and spread to other parts, by metastasis or direct invasion, secondary particles carried through the circulation or the lymphatic channels.

These two groups of tumors have each their own peculiarities, which can be summed up as follows: Benign.—Have a capsule; are homologous; usually poor in blood vessels; no metastasis; generally multiple; may grow very large; ulcer if exists only superficially in the skin-lipoma; do not recur; never kill except mechanically; no cachexia. Malignant.—Have no capsule; are heterologous; usually soft and juicy; rich in blood vessels; give metastasis; generally single primarily except spindle-cell sarcoma which, may be multiple; primary always small; secondary may grow large; often ulcerates tumors itself being involved do recur; kill by destruction of tissue and metastasis; show cachexia—progressive emaciation from lack of nutrition. The malignant tumors are represented by the various forms of cancer and sarcomas; all the rest are benign, with the exception of the myxoma, which may be either.

CLASSIFICATION BY SHAPE.

1. Uniform swelling: Goitre lymphoma Glioma.
2. Nodes growing centrally (all the benign grow below the surface): Fibroma, myoma, lipoma, chondroma, neuroma, etc.
3. Nodes by infiltration sending roots: All malignant tumors, sarcoma and cancer.
4. Desquamation: Ichthyosis.
5. Flat tabular swelling: Benign angioma, lymphoma, kilioid, malignant epithelioma, squamous and cylindrical.
6. Hemispherical growth: Multiple fibroma and spindle-cell sarcoma.
7. Tuber: Chondroma, osteoma, chondroma.
8. Papilla: Horns, corns, chondyloma (pointed).
9. Fungus rich in color and not covered by skin: Telangiastatic sarcoma and carcinoma.
10. Polyp or pedunculated growth: Myoma, soft fibroma, adenoma.

11. Deudritic or cauliflower growth : Papilloma if growing only upward ; epitheloma if growing both upward and inward.

12. Cysts : Hollow tumors.

III. *Histogenetic classification :*

A. Histioid tumors. *a.* Perfect : Fibroma, repeating the structure of fibrous tissue ; myoma, mucous tissue ; lipoma, adipose tissue ; osteochondroma, callus tissue ; osteoma, bone ; myoma, muscle ; neuroma, nerve ; angioma, blood vessels ; lymphangioma, lymph vessels. *b.* Imperfect : All the forms of sarcoma and glioma.

The perfect histoid tumors are formed and grow after the type of various forms of connective-tissue substances, or repeat one of the elementary tissues, while the imperfect histoid tumors are formed after the type of embryonal connective tissue.

B. Organoid tumors. *a.* Perfect : Adenoma, repeating the structure of a gland ; papilloma, repeating the structure of the skin or mucous membrane. *b.* Imperfect : epithelioma, repeating imperfectly the structure of the skin or mucous membrane ; carcinoma (glandular), repeating imperfectly the structure of a gland.

The perfect organoid tumors are formed, then, after the type of a typical epithelial structure, while the imperfect are a typical structure.

C. Paratoid tumors are represented only by dermoid cysts and made up of a number of separate tissues, as fat, cartilage, bone, teeth, or hair, enveloped in a capsule.

In the short time allotted to me I can hardly more than enumerate some of the more important tumors, giving a very brief outline of some of them.

Fibroma : Connective-tissue tumor, after the type of fibrous tissue. Common in domestic animals, particularly the dog and horse ; may grow in any part of the body where connective tissue is found ; usually single, but may be multiple ; two varieties, hard and soft. Microscopy : Hard fibroma has many fibres running in various directions, few cells and blood vessels ; soft fibroma has many cells and fewer fibres, which are loosely

arranged. The fibroma grows, generally, as a nodule, but occasionally may be pedunculated. Neoplasm : Fibromas may be found also in old scars, sometimes following castration or as keloid fibroma of the skin. The fibroma combines readily with the myoma, more seldom with myxoma, lipoma-sarcoma. The ordinary shoe-boil becomes eventually a fibromyoma. Degenerative processes are very common in fibromas : calcareous, mucoid fatty, and telangiectatic.

Myxoma : Connective-tissue tumors after the type of mucous tissue. Is not as common in animals as in man. A typical myxoma is soft and often hangs on a narrow pedicle, as a polyp from mucous membrane. They occur also in connection with the mammary gland, brain, and spinal cord. Microscopically they consist of stellate or spindle-shaped connective-tissue cells, which lie within a homogeneous, somewhat refractive or gelatinous matrix. Combines with fibroma and lipoma, but is also one of the invariable constituents of mixed tumors of the parotid gland or the testicles, and from the various tissues of the combination called adeno-fibromyxochondro-carcinomatosis.

“WHAT I SAW AT OMAHA.”

BY DR. J. J. DRASKY, CRETE, NEB.

Read before the Nebraska Veterinary Medical Association, February 21, 1899.

I have been a member of the Nebraska Veterinary Medical Association since 1896. My reason for joining was one that brought fifty per cent. of my colleagues within our circle. The only point we had in view in joining was some form of legislation benefiting and elevating the standard of the veterinarian in the State of Nebraska. With hard work and the co-operation of the entire society we are about to take our first step by having a bill passed providing for a State veterinarian. While it may not help us all directly, we each and every one will be benefited in the end. The field is now open for operation ; we are now given the opportunity wherein we can prove to the people of Nebraska that we are worthy of their confidence and

protection. If the bill passes, and I believe it will, the State veterinarian and his assistants will be in a position to show to the people of Nebraska the difference between a qualified practitioner and the empiric ; and, therefore, if it so happens that we hereafter may ask for some legislation along our line, the task of securing it will be insignificant in comparison with our past struggles. But I have found that there are other benefits to be derived from active membership in the association, and of far greater importance than this. Dr. S. Stewart in a paper read before the Missouri Valley Veterinary Medical Association, October 5th, expresses my feelings far better than I myself would be able to do. In the association we meet our colleagues, exchange with them our views on operations ; if downhearted are encouraged, and we leave for home happy, contented, refreshed and prepared for another struggle. If we have failed in the treatment of a certain disease, we are either able to determine the cause or learn that others are not much better off than we are. We read our papers and they are thoroughly discussed in a friendly manner ; each and every one feeling perfectly at home, and I believe I am right when I say that there is not a member in our Nebraska Veterinary Association who would hesitate to speak of his non-success. Yes, I am convinced that more of us usually bring the most difficult cases, the cases which we cannot handle, before the association, and the discussion created thereby benefit not only the individual, but the entire body. We have started in small, our membership insignificant ; but while we are small in number we are united ; each and every member is always ready to put his shoulder to the wheel and make this association as good as the best. To illustrate the strength of union and harmony, I may only point to our meeting at Omaha. The task of entertaining the American Veterinary Medical Association was an enormous one ; still, we succeeded far beyond our expectations, everything being very satisfactory, with the exception of one portion of the clinics, and the task of describing this has been assigned to me.

The clinics, as you know, are a new departure in our veteri-

nary association, and in new features mistakes are easily made; possibly not by the Entertainment Committee, but, as was the case at Omaha, through the ignorance and previousness of some one else. I was asked by Dr. A. T. Peters to secure a ridgling horse, which I did. It was taken to Omaha by Dr. Peters with other patients and was to have been operated on by Dr. J. W. Adams, but through some cause this gentleman was not present, and Dr. S. E. Cosford was asked to operate. There are none among us who will deny the skill of Dr. Cosford, for his long experience and good success speak for themselves; but as he has been inspecting stock for the last four or five years, and, therefore, retired from active practice, it may be the cause of his partial failure, not on account of his inability, but by allowing himself to be misled by one whose conduct was anything but complimentary to the veterinary profession. I hope that none will take offense at what I may say, for it is not my desire to be sarcastic, to ridicule or to speak in an unfriendly manner, but if inappropriate conduct of any of us at the veterinary association meetings be overlooked, the result may be disastrous to the association. It is not from choice that I have written this paper, but it seems that in this case I am a subject of circumstances. As I have already stated, this horse was in my care. I was acquainted with the history of the case, which I gave at the clinic. As the operation caused a great deal of excitement I was requested by a great number of my colleagues to report the result thereof. For the benefit of those who were not present, I shall attempt to describe the proceedings in detail.

The subject, a two-year-old colt, was brought out, cast and secured. Dr. Cosford, observing the necessary antiseptic precautions, washed and cleansed the scrotum with an antiseptic solution and cleansed his hands thoroughly, cut through the common integument, exposing the external ring, then following the inguinal canal, punctured the peritoneum about the internal ring and proceeded to secure the cord. So far the operation was performed in a very professional manner. Evidently he accomplished his desires and in a short time succeeded in

bringing to light something that to most of us appeared to be the cord; but through some then unknown cause the testicle failed to follow. Dr. Cosford worked very hard and he should be complimented on his level head and steady nerve. When repeated attempts to bring the testicle forward failed, he asked Dr. Vincent, of Shenandoah, Iowa, who stood immediately behind him, if that was not the cord. Dr. Vincent in reply said: “No, any one that has ever had the cord in his hand should know better,” or something to that effect. Dr. Cosford at once released his hold upon the object in question and proceeded once more to explore the “lower regions,” but, in spite of it all, the same portion of the horse’s anatomy was brought to light. After repeated failures, Dr. Cosford requested Dr. Vincent to put his hand in there and ascertain whether or not that was the cord. Dr. Vincent at once proceeded. After throwing off his coat and rolling up his sleeves, he took possession of the subject. Passing his hand into the canal he uttered these words: “In the first place, you are not working with the proper hand. You should go in with the right hand for the right seed and the left hand for the left seed.” Next he said: “You have torn such a hole in here that when this horse gets up the guts will come down. The guts are now staring me in the face.” Of course such professional and scientific expressions took the breath out of the entire assembly. Some of the boys’ hats blew off as the result of this unexpected gush of gas. He then continued and secured what looked to all of us like the cord, applied the ecraseur and removed the structure in question, claiming it to be the testicle. He proceeded at once to give us a free lecture on ridgling castration, telling us of the great, great many he had operated on, and the very, very insignificant losses he had met with. I shall let you imagine the effect that all of this had on the clinic class. The majority of us turned our backs upon the orator, and some of us proceeded at once to dissect the so-called testicle and found it to be nothing but a section of the spermatic cord. We, knowing that the testicle was not removed, knew that it must still be in the abdominal cavity.

Many of my colleagues came to me and expressed the desire to kill the subject, hold a post-mortem examination and prove the gentleman a prevaricator of the truth. To this I would not consent, but I gave them all my word of honor that if the horse died, I would hold a post-mortem examination and publish the results.

The horse was led into his stall and taken care of by myself in person for the two days that I remained in Omaha. Three or four days after the operation he was shipped with the other subjects operated upon to the experiment station at Lincoln, and in vain did Dr. Peters and his assistants strive to save the life of the patient. Six days after he arrived at the experiment station, I received a message from Dr. Peters stating that my horse had succumbed and asked me if I wished to be present at the post-mortem examination. I at once answered requesting Dr. Peters not to do anything until I came. On arriving at the State Farm I found the carcass and we at once proceeded with the post-mortem, which revealed inflammation of the entire abdominal cavity, enteritis, peritonitis, etc., considerable pus around the inguinal glands, a great deal of effusion and pus in the abdominal cavity, extensive adhesions, the peritoneum and intestines in all stages of inflammation, and the desired organ, the testicle, we found free in the epigastric region. The testicle being abnormal we could readily see why the operators were unable to bring it to light by simple traction on the cord, it being considerably larger than the slit in the peritoneum. The serous covering was the only one which appeared normal. Inside of this we found a semi-osseous covering, rendering the organ unyielding and very hard. On cutting through this we found the hard shell to contain a great deal of fluid, which exuded at once. As cystic testicles are not uncommon, a trocar should be at hand at these operations and the fluid drawn, which would cause the testicle to collapse. Still, if this had been done, the consistency of the shell in this case would not have allowed the testicle to collapse. I have brought this specimen with me, thinking that it will interest many.

Gentlemen, I sincerely hope that this paper will be interpreted by the profession in the spirit in which I have written it. In it I reprimand Dr. Vincent, not because of any personal grudge or dislike, but for the good of the profession. I am convinced that Dr. Vincent's conduct was due to ignorance rather than to a desire to injure anyone; neither do I believe he wished to deceive us when he stated that he had removed the testicle. But in reprimanding him we warn those who may through malice or otherwise take an opportunity thus offered to belittle their colleagues, thus injuring the meetings, from the fact that many of those well informed lack courage and fluency of speech, and if by some individual possessed with the gift of gab he be handicapped, the profession is robbed in this way of valuable ideas and possibly of a desirable member. If he be allowed to go on in this way at our association meetings, what will he do in active practice? How is he likely to talk to his clients, and what will his conduct be toward his competitors? I beg pardon of Dr. Vincent that it was his misfortune to be made an example of, and I assure him that I feel as friendly towards him to-day as I do to any member of the profession. I have not chosen this paper, but, as I have said before, it was assigned to me for the reason that I was responsible for the subject operated upon. I naturally became more interested than others and our officers were justified in assigning me this paper.

AZOTURIA IN THE DOG.

BY ROBERT DICKSON, D. V. S., NEW YORK CITY.

Read before the May meeting of the Veterinary Medical Association of New York County.

The following two cases which came to me for treatment during the past few months being both new and novel to me, I thought it might be interesting to the members of the society to hear the symptoms shown, treatment prescribed, and the termination of each, as I have never heard or read of any case in canine practice displaying the symptoms shown in these cases.

The May number of last year's REVIEW quotes a paper read before the Wisconsin Association of Veterinary Graduates at Milwaukee on "Azoturia in the Dog," by Dr. Leach, and as there is such a difference between his experience and mine, I hope there will be a chance for us all to learn something.

He states, "it is characterized by tonic and clonic spasms of the pelvic and lumbar muscles, also those of the pectoral region." He also states that the primary cause is dietetic and that dogs are very liable to it, as they are very much abused for want of exercise in the proper manner; that owners also err in the way of feeding, not paying enough attention to the condition and vocation of the animals, and in that way leaving the dog more subject to the disease. Then he goes on and gives a brief description of the symptoms he found in two cases, one dog being attacked in the right pelvic limb, the other losing the power of both pelvic limbs, urine high colored with nitrogen and albumin slightly present. Then he states they yield very easily to treatment, quickly recovering, with very little danger of their terminating fatally. *How* near he is right or wrong it is for you gentlemen to determine, or whether he has had a true case of azoturia.

The following is my experience: Feb. 15th I was called to see a black spaniel, 9 years old, weighing 21 pounds, very fat and well cared for. He had an attack of nephritis last fall, and one attack a year ago last fall. He was well fed from the kitchen, getting a taste of everything he would eat. It was a standing rule for him to be exercised twice a day, morning and night; as he was taken from the house this day, the house being situated at Park Avenue and 74th Street, he played, ran, jumped, and appeared to feel as good as usual, until he reached 5th Avenue and 75th Street, when he was suddenly taken with a faulty gait, reeling and staggering, and finally falling down, becoming unable to walk. He was carried home and I was sent for. On arriving at the house I found him lying on his left side. He appeared bright and showed no symptoms of pain, but could not stand up. Thinking it a case of acute

paralysis from some old kidney trouble, I prescribed accordingly. Gave cathartic, but to my surprise the next day found he had died at 9 o'clock, after 23 hours of sickness.

My second case was a black-and-tan common-bred dog, two years and six months old, weighing 40 pounds. He had a short, thick body, and was very fat. He was kept in the house and store as a night watch-dog, but was never tied up; was allowed to run in the streets a few minutes three times a day on dry days, on wet days was put in a small covered yard. He was very choice and dainty in his eating, would not eat anything but choice beef and chicken, and was fed three times a day, as regular as his owner ate himself.

On March 10th his appetite became capricious and diminished, increased thirst but diminished urination, and complete constipation. Prescribed a cathartic and sanmetto, giving two drams every three hours. On March 11th was very unsteady upon his feet, and when compelled to walk would reel from side to side, and show symptoms of acute vertigo. When lying, appeared stupid or semi-conscious; no fæces or urine voided during the day. A partial paralysis now appeared in the posterior quarters with a twitching of the superficial voluntary muscles. Countenance became anxious, patient moaning almost constantly. The catheter was introduced during the evening. Urine evacuated was of a dark brownish black color. The lumbar muscles now became hard, rigid and prominent, and appetite impaired. Temperature 103° , pulse 98, respiration 25.

On March 12th, complete paralysis of back loins and posterior extremities, the muscles being hard, prominent and painful upon manipulation, the bowels operating freely due to the cathartic administered, urine retained, catheter introduced and urine found to be slightly changed in color. During the day patient showed colicky pains at frequent intervals, the paroxysm coming on every 4 or 5 minutes. Temperature 103.2° , pulse 96, respiration 28.

On March 13th no apparent change in condition, appetite failing, bowels operating, sat up and passed urine without aid,

which was of lighter color. Temperature 102° , pulse 92, respiration 20. Symptoms about the same as previous day, colicky pains having subsided. On March 14th he died in the morning, before I arrived, struggling in his agony.

In conclusion, I would like the opinion of the members present. Did my patient have azoturia, that mysterious disease of the horse, or was it acute or chronic nephritis, meningitis, spinal meningitis, cystitis, or some as yet unidentified disease?

PROGNOSIS.

BY J. C. MICHENER, V. S., COLMAR, PA.

Read before the Annual Meeting of the Pennsylvania State Veterinary Medical Association, March 8th, 1899.

The elements of success in the practice of our profession are threefold.

First and most important is actual knowledge pertaining to all branches of the art. Second, executive ability or the faculty of applying knowledge. Third, prognosis or the ability to forecast the results of the diseases and conditions met in practice.

Skill and discretion in the use of the tongue is largely the making of a practitioner. We must talk. Our patients are property and aside from the attachment the owner has for his faithful animals our services become a matter of dollars and cents. To experienced practitioners I need not portray the close questioning to which we are subjected and scarce need tell that the client's estimate of us will be determined by the verification of our answers.

To the young man I would say, the safest plan (for both old and young) is to prognosticate as little as possible.

Direct questions must be answered or we will be in the position of the simple boy whose mother had ordered to keep his mouth shut on a particular occasion. Being questioned, and making no reply, one guest remarked to another, "I believe the boy is simple," when he blubbered out, "Mother! mother! they found me out and I did not say a word."

Much skill can be exercised in making provisos for the unforeseen circumstances that may arise. If the lame horse does not strain himself over again, the sick one take fresh cold, the surgical case contract blood-poisoning or develop lock-jaw, we can hope for favorable results. "Look wise, but say little." Grave looks, a shake of the head, upon taking the pulse or temperature, frequent visits, anxious inquiry when the attendant is seen before the patient, all tend to make it a serious case, assuage grief when terminating fatally and augmenting the rejoicing when the case recovers.

I am talking particularly to the young men and can assure them that these little artifices are justifiable in self-protection under the difficult circumstances.

The human practitioner's powers of forecast are not so severely tested. He is not required to answer so definitely. Simply is it a serious case, giving him a chance to err upon the safe side.

But the veterinarian is asked bluntly, can you pull him through? which must be answered by a yes or no, or a hopeful or doubtful. If no, or doubtful, your services are discredited and likely discarded at once. If an affirmative answer is followed by a negative result, you are branded a humbug.

How is the practitioner to best prepare himself for this difficult part of his work? A close study of the natural course of diseases, their period of duration, the weakness or idiosyncrasy of the patient and the hygienic conditions under which he must be treated, together with the history, the stage in which he finds him, the extent of pathological change, all of which coupled with great discretion will enable him to answer the unavoidable questions in such way as to convince his patron that he understands his business. Not only this, but the knowledge just enumerated is essential to avoid being robbed of the fruits of your skill and care. Many funny things occur in practice. Dr. Brown has been treating a spavin for several weeks. The benefits are not apparent to the owner and he is dismissed and Jones employed. Anchylosis is about being completed, Jones

has the toe shortened, gives a little judicious exercise and monkey's treatment. Lo ! the horse soon goes sound and Jones scores a mighty victory. Brown has his revenge. Jones has treated a case of strangles until the suppurative stage is near, gets the bounce and Brown shows them how to clean them out. He is usually the lucky man who is called near the close of endemic. The cases are less severe and show his superior treatment. Typhoid influenza and parturient apoplexy often give a man much unearned glory. We are frequently asked for an opinion upon some abnormal condition, especially when the animal is about being sold. Does or will it disqualify the animal? Other opinions will be freely proffered and sought after, and your prognosis in the case surely put to the test. Many cases will not admit of a positive prediction and many reputations have been shattered by making positive assertions. Still worse when a man is off in his diagnosis pronouncing a case of bruised or punctured frog, severe hip or shoulder lameness. A broken tooth or foreign body fast in the mouth, a case of choking distemper, and there are lots of similar mistakes that amount almost to professional suicide.

REPORTS OF CASES.

" Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

A COSTLY EXPERIENCE.

By W. H. TURNER, V. S., North Amherst, Ohio.

On December 5th we were called to a neighboring town to attend a cow said to be suffering from indigestion. On reaching the farm we found a basement stable containing about twenty head of cattle ; and among them a Jersey cow, very emaciated, discharging a watery secretion quite freely from both nostrils and eyes. Thermometer gave a temperature of 103, pulse was 72, and respirations 14. Persistent grating of the teeth and complete loss of appetite, but no tympany present. My diagnosis was that we thought the trouble catarrhal influenza and treated symptoms. Next day we were again called, being

notified that three or four others were sick. On arrival we found a grade heifer dead. She had been taken sick last evening and died before morning. Her stall was the next one to our patient of yesterday, which was in much the same condition as when we first saw her.

There were three others more or less ailing, presenting symptoms similar to the Jersey cow, with occasional switching of the tail, stamping of hind feet and lying down and getting up; or, in other words, showing colicky pains, with hurried respiration, blueish color of the gums and a peculiar smell to the breath. We now became alarmed, thinking we had something of a very serious nature to deal with, and requested that another veterinarian be called in council.

We began an investigation of surroundings, etc., and soon discovered a cause. About a week or more before our visit the owner had thought to save himself some considerable work, and so had built a water trough, about four inches deep, and one foot wide, which passed through the mangers of the whole string of cattle, so that they could be watered without leaving their stalls. This trough had been made of unplanned green plank, not matched, but simply spiked together, and was probably seventy-five feet or more in length. Very naturally it leaked, and in order to stop this, he had used five pounds of white lead in coating the inside at the joints and bottom. You can imagine how much would adhere to the saw marks of unplanned lumber. He had then watered the cattle from the trough every day, even to the same day he painted it.

We now diagnosed lead poisoning, discontinued the use of the trough, and prescribed magnesia sulphate, sulphuric acid and iodide of potassium. On examining the herd we found elevation of temperature, 102 to 104, in every one except one. So we treated the whole herd. One died the first night, one in three days, one in six days and one was killed.

Dr. Gribble, of Elyria, saw the cattle with me.

SORE MOUTH IN CATTLE.

By H. FULSTOW, V. S., Norwalk, Ohio.

During the month of October I was called to see a cow for a Mr. Smith that would not eat. Upon my arrival I found a nice big cow, stiff all over, looking as gaunt as a greyhound, nose poked out and smacking her lips, with abundant saliva dribbling from the mouth. Pulse slightly increased, temperature 104°, mammary glands hot and upon trying to milk her strings

of pus came away; bowels constipated, urine scanty. I examined her mouth and found the dental pad had ulcerated patches on it and a very foetid smell; mouth was very hot and tender; also some ulcers around the gums of lower jaw and some of the incisors very loose; one I picked right out. The owner put a piece of pumpkin back in the mouth and she ate it greedily. As this was the first case of the kind I had met I was guarded in my diagnosis, thinking I might have a case of contagious aphtia or foot-and-mouth disease, as everybody in the old country calls it. I gave the cow sulphate soda, $\bar{3}$ viii; zingiberis, $\bar{3}$ ii, in solution, at one dose, and left one-half pound more of the same to give her a tablespoonful three times daily dissolved in hot water and put into her feed. Feed consisted of scalded oats and bran, very sloppy. Swabbed her mouth with some of the following: Tannic acid, borax, and glycerine in aqueous solution, and ordered it swabbed three or four times daily. Cow did nicely and was well in about ten days. The nextday I got two more cases about twenty miles in another direction, and for about four weeks I treated twenty-seven cases in all, with symptoms about the same, with a few variations; one or two, I think, had small ulcers form on leg and a few had ulcers in cleft and around coronet of feet.

Now, can any of my fellow practitioners tell me what caused it? Was it due to some poisonous weed or some toxin poisoning? I will say that I did not have a new case after the first frost came and all the cows treated were at pasture. I heard of several cows that just starved to death before they found out what was the trouble.

WHAT BECAME OF THE STICK?

By J. F. DE VINE, D. V. S., Rhinebeck, N. Y.

On January 23d I was called to Mr. D.'s stock farm and on my arrival found the subject to be a ewe. The herdsman gave the following history: Ewe lambed last night; was bright and ate well this morning; fed cut turnips and meal to flock at noon; after feeding her, and while feeding the others, she began to jump about violently in pen; found she had piece of turnip in her throat. Immediately he picked up a piece of bale-stick, about $1\frac{1}{2}$ feet in length, smoothed it with a knife and wrapped cloth on one end and oiled it and then proceeded to dislodge the turnip. After passing the stick down about one foot, the animal made a bound in the air, breaking the stick close to the hand. He showed me the stick, or what remained of it, and it

was about $1\frac{1}{2}$ inches in circumference. The ewe was lying on her side and resting easily with the exception of slightly labored respirations. I manipulated the œsophagus, but could find no stick. I then decided to cut down on the œsophagus at base of neck, knowing my fingers were pretty long and thinking if lodged in thoracic region, I might grasp it. This was without success; even an eight-inch sound met with no obstructions. I then closed the wound, ordered sloppy diet and left, thinking what best to do next. On the morning of the 24th she ate a little and seemed somewhat brighter. She improved in appetite daily, convalescing completely in a week, and to-day is as well and fat as any of the flock and has reared her two lambs.

What I would like to know is, Where is the stick? What became of it? Should I have performed rumenotomy immediately, and is it practicable in sheep?

A CASE OF POST-PARTUM PARALYSIS.

By J. F. DE VINE, Rhinebeck, N. Y.

On April 3d, about 3 P. M., Mr. C. came to my office saying he had a Jersey heifer which he thought very much of and would like me to come and see right away.

On my arrival I found her in a recumbent position. He gave the following history: On the morning of April 1st she gave birth to a nice large calf, and on the evening of the 2d she went down; she was raised several times by attendants, but only to fall again, pulse, respirations, temperature, appetite and excretions all being normal. I then made a manual examination of the vagina, os, and uterus, finding all normal with the exception of retention of the placenta, which I removed. I then cleansed the uterus with an antiseptic solution. The only medication she received was fld. ext. nucis vomica, 3 ii, four times daily.

Leaving orders to keep a good litter of straw under her and to have her turned occasionally, I left, saying I would call again in the morning.

On the morning of April 4th, the attendant told me the animal tried to rise about 7 P. M. of the 3d, and finally succeeded, but in a few minutes went down again. I found the animal up and eating, temperature, respirations, etc., normal. She made a complete recovery, not causing even a suppression of the lacteal secretion.

Was this not a true case of post-partum paralysis? and did the retention of the placenta have any bearing on the cause?

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

BY PROF. OLOF SCHWAFZKOPF, Flushing, N. Y.

LUGOL'S SOLUTION IN SEPTIC METRITIS.—Veterinarian Simon, Havixluck, recommends Lugol's solution (iodine, 1 part; iodide of potass., 5 parts; aquæ destill., 100 parts), for purposes of irrigation of the uterus in septic metritis. He maintains that the common antiseptics, carbolic acid, lysol, creolin, are irritating to the uterus and produce violent straining in both cows and mares, sometimes resulting in prolapsus vaginae. The most interesting of his cases is that of a mare, in which the placenta, which was retained after birth, was manually removed by an empiric, resulting in septic metritis. S. remarks here that in his experience the manual removal of the placenta in a mare is commonly fatal, but that it is most successfully accomplished by the introduction of large quantities of water. The mare exhibited high fever (104° F.), pulse 75, conjunctiva yellowish-red, abdomen greatly drawn up with colicky pains, groaning and rolling. During manual exploration of the vagina and uterus the mare strained heavily, ejecting a reddish-brown fluid of foetid odor. With the internal application of bicarbon. of soda and iodide of potass., S. irrigated the uterus with Lugol's solution, 4 tablespoonfuls to 1 quart of water. On the first day this irrigation was made twice, on the succeeding three days only once a day. In 4 days the mare appeared as cured, and S. considers it a rapid recovery.—(*Berlin. Thier. Wochensch.*)

PILOCARPINE IN ASCITES.—Dr. A. Schmidt-Halle reports a case of severe ascites in a poodle-dog, which he considered hopeless. The abdomen of the dog was enormously distended and entirely incompressible. As the owner insisted upon treatment, S. opened the abdominal cavity with a fine trocar, through which was emptied about five litres of a watery fluid. The internal treatment consisted of digitalis and tinc. colchic. Within four days the dog was brought again and this time 4 litres of fluid extracted. S. then prescribed pilocarpine hydrochlorate, 0.3; aq. destil., 150.0; one tablespoonful a day. After three days the owner reported that the abdomen had not filled again, but that the dog was spitting constantly. After eight days the owner brought the dog and reported that its keeper had given

two tablespoonfuls of the medicine instead of one, hoping to accelerate the recovery. The dog had manifested no serious effects, but appeared as usual and has remained so. One result of the pilocarpine treatment consisted in alopecia of all four legs, but a new growth of hair soon started, although being of a lighter color than originally.—(*Berlin. Thier. Wochensch.*)

ENGLISH REVIEW.

OPERATION FOR STONE IN THE BITCH [*By A. J. Sewell, M. R. C. V. S.*].—The author after giving the symptoms that accompany vesical calculus and making some remarks on lithotomy and lithotripsy, relates a case in which he operated on a small toy terrier bitch, over 13 years of age, resorting to the pubic operation, and in which he removed two calculi, one as large as a small walnut, the other smaller and flat on one side, as if it had rubbed against the first. Complete recovery occurred in three weeks—a kind of vesical fistula interfering with the healing process for some time. The operation was carried out under the usual aseptic conditions. In conclusion Mr. S. says: "Lithotripsy should always be performed, when possible, instead of lithotomy, being a much safer operation, except, of course, when the stone is quite small, when it may be removed entire with a small pair of forceps. A great drawback of lithotripsy is, that when the calculus is large, it takes a long time to remove all the fragments."—(*Vet. Record.*)

CANINE INFLUENZA, OR WHAT? [*By H. Gray, M. R. C. V. S.*].—Influenza is admitted to affect dogs by French and English writers, but the affection observed by the author is more of the nature of "grave infectious stomatitis." In the early part of 1898 many cases were brought to him, as many as 15 in a day and often 50 a week. The symptoms were shivering, loss of appetite, depression, vomiting, difficulty or inability to sleep, buccal mucous membrane covered with thick soapy mucus, also on gums, tongue, soft palate and pharynx. Tip of the tongue gangrenous, with a tendency to expand. The whole region of the mouth was of dark reddish appearance. Mouth had odor of sour ensilage. Rapid fatal pneumonia occurred in many cases. Sometimes there was diarrhoea, sometimes none. Slight cases were subject to relapse. Recovery occurred in strong dogs, but in old, heart or kidney lesions followed by death were frequent. Convalescence long. The treatment consisted in tonics, quinine and hydroch. acid, tinct. cinchona, amputation of gangrenous

tissues and iodine dressing; bismuth, ice and soda, brandy, milk, essence of meat.—(*Vet. Record.*)

SEQUEL TO BLISTERING [*By T. H. Gibbings*].—A mare, lame forward, after several ordinary forms of treatment, was blistered around the coronet and after a week or ten days she traveled sound. Some time later, at the request of the owner, a second series of blisters was applied, and after three days showed all the symptoms of blood poisoning. Her head and limbs were swollen, circumscribed swellings appeared all over her body, mostly in dependent positions, ecchymosis of the membranes of the eye and nose, with profuse bloody discharge; great difficulty of breathing, and loss of appetite. The swellings were well fomented, and belladonna liniment applied and iodine given internally. This was done for several days. The breathing was relieved and appetite returned, but many troublesome sores of the head, knees, hocks and the heels occurred, which were treated by antiseptic dressings. Ultimately the mare recovered, but had very ugly cicatrices in various parts of the body remain.—(*Vet. Record.*)

INTRA-ABDOMINAL SWELLING ASSOCIATED WITH A SMALL SCIRRHOUS CORD [*By F. T. Harvey, F. R. C. V. S.*].—A four-year-old gelding presented the following symptoms: Occasionally slight colic, frequent micturation. Standing with legs wide apart, he is stiff in his gait. When the legs are in position the back seems arched. Appetite bad. Temperature 103° ; pulse and respiration not disturbed. Rectal examination revealed a large swelling on the right side, greatly diminishing the looseness of the rectum, and apparently extending away into right flank. At one point it is distinctly nodular. Pain was evinced on pressure. The right cord is indurated. About the size of a man's thumb inferiorly, it becomes very large as high up as it can be felt. There was discharging; no œdema had ever occurred. The animal received a treatment of iodide of potassium, three drachms a day for four weeks and reduced gradually to smaller doses. Recovery was complete in about six weeks.—(*Vet. Record.*)

IMPERFORATE OS.—Mr. P. C. Howard, M. R. C. V. S., related a case in a three-year-old heifer, which he considers as quite rare, and is answered by Mr. G. H. Williams, who calls his attention to eight somewhat similar cases recorded in the *Journal of Comparative Pathology*, and mentions seven cases which were brought under his observation. In his case, Mr. Howard relates the symptoms as follows: The heifer strains violently

and persistently ; drops of urine drip from the vulva. Examined by rectum, a balloon-like mass is detected, apparently occupying the whole pelvic cavity. On attempting to examine her vagina, he found that there is no passage to the uterus, and felt a tough, tense membrane pressing against his fingers, about 10 inches from the vulva. He used considerable pressure, which the heifer resented, and eventually with a blunt probe burst the membrane. A clear syrupy fluid, slightly tinged at first with blood, flowed away to the amount of $3\frac{1}{2}$ gallons. The animal recovered rapidly her normal condition.—(*Vet. Record.*)

HYDROPS UTERI IN A HEIFER [*By P. J. Simpson*].—The interest of this case consists in the amount of fluid that was extracted, and which is estimated by the author at fifteen gallons. The clear fluid that escaped from the dropsical organs continued to flow for over an hour and a half.—(*Vet. Record.*)

A NEW AND EFFECTIVE DOG MUZZLE.

City veterinarians especially will be glad to welcome the invention of a muzzle for dogs that is simple, practical and effectual. While muzzles have been used universally from time immemorial, we have never seen one that is so thoroughly



adapted to the various uses of the veterinarian in practice as the one herewith illustrated. For operations in the office, or to patients who have received surgical or other dressings it is superior to anything we have tried. At the April meeting of the Veterinary Medical Association of New York County, Secretary Ellis, who has been using them for some time, was good enough to present us with one, and so valuable did it prove that it has

been adopted as a well-nigh indispensable addition to our canine paraphernalia. That others might become thoroughly acquainted with it, we importuned Dr. Ellis to write a description of the little invention, and are pleased to affix his letter :

Dear Dr. Bell :

Assuming that by this time you have become enthusiastic over the advantages of the muzzle that I presented you with at our last meeting, I

herewith mail you a photograph of the same, which I had taken at the manufacturer's request; and he authorizes me to say that he can furnish mail orders with perfect satisfaction, by observance of the following rules: In ordering for any size dog up to a bull terrier, order by numbers as follows: No. O, suitable for black-and-tans and other small *toy dogs*. No. I, suitable for fox terriers, Irish terriers, pugs, etc. No. II, suitable for bull terriers, collies, etc. Beyond that size, send neck measurement close up to back of head, distance from back of head to point of nose, and circumference of nose. In *all cases*, whether ordering by number or special measurement state breed of dog, and whether large or small and coarse or fine, of that particular breed. He quotes prices as follows, in fine black leather: No. O, \$1.25; No. I, \$1.50; No. II, \$1.75, and special measurements, from \$2 up, according to size. In tan color, 25 cents extra on each muzzle. Address all orders to "The American Box Muzzle Co.," No. 453 West 150th Street, Borough of Manhattan, New York City, enclosing P. O. order for amount of price, or checks, if in New York or vicinity.

I have been using the "American box muzzle" for several years in my office and general practice, and have found it to be a wonderful addition to an equipment for the successful treatment and handling of dogs, surgically and otherwise. The size which I find comes most often into requisition is No. I, such as *you* have, and by having in addition No. II in my office, I find myself ready to handle safely and comfortably almost any size dogs that may come in. I find two great advantages from the use of this muzzle, aside from its general usefulness, in that it will not offend the most fastidious dog owner, when they see it on, and see their dog's nostrils appear naturally and free at the front aperture, as the universal tape often *does*, because, they tell us, "you have to tie it so tight, Doctor," and it insures us more efficient help from the person holding the dog, when his mouth is perceived to be thus covered. This latter advantage applies more especially in the cases we dress on our rounds, away from our offices, where we have not our regular assistants to call upon, not even our well-scared office boy, but instead have got to depend upon the mistress of the dog, her maid, or some one equally inexperienced or timid; and one or two of the muzzles can readily be carried in the carriage along with the other articles.

And in addition to these surgical cases where we use the muzzle ourselves for a few moments at a time in applying dressing, it fills an excellent place in the treatment of exaggerated skin diseases, in preventing the dog from licking off any application that we may desire to use. In such cases I prescribe or order a muzzle, letting my client procure it, and when through with the case he hangs it up amongst his dog's belongings for future use on similar occasions. By adhering to that rule, we will not find ourselves without a muzzle in our office some day when we desire to use it in a hurry. A veterinarian once getting to use them will be surprised how many he prescribes or orders in the course of a year, if his dog practice is at all extensive, which indicates how much we need the article.

Very truly yours,

ROBERT W. ELLIS.

(*From the Breeders' Gazette.*)

BREEDING CITY HORSES.

An Illinois reader submits the following :

"In your issue just at hand you tell us the kind of horses to breed for city uses five years hence ; now will you please go a little further and tell us how to produce them ?"

This is "a horse of another color." It is comparatively easy to indicate the types of harness horses most in demand, but opinion varies widely as to how they can best be produced. Let us get a clear understanding of the problem by defining the types of horses under consideration. By general usage among the best-informed, city horses for pleasure purposes are divided into two general classes—light-harness and heavy-harness. This is not an especially distinct classification, but convenient and reasonably accurate. A light-harness horse is a roadster or buggy horse. He wears a breast-collar (Dutch collar) harness made of light leather throughout, and the bridle to this harness has an overdraw check, with or without blinders. By heavy harness is not meant draft or truck harness, but the heavy-strapped collar and hame harness used for traps, gigs, broughams, victorias, coaches and all the various other types of vehicles built in much heavier style than road wagons, top buggies and phaetons. With this harness side-checks or bearing reins are used. The difference is not merely in the collars, but also in the size of the straps and weight of the harness throughout. Horses large enough and rotund enough to fit these heavier vehicles and harness are called heavy-harness horses. They are also termed carriage horses, coach horses and high-steppers.

Let us first consider the light-harness horse. The cheapest horse on the market (aside from "plugs") is the ordinary driver—the buggy horse. This type without speed and with only a small amount of good looks has been produced in such vast numbers that they are a drug on the market. They are useful for buggy purposes. They will draw vehicles (even as heavy as a light surrey) at six to eight miles an hour and do excellent service as family horses in towns or villages, and are worth much more in actual service than their present price, but the city will not pay good prices for them. They lack two qualities of a high-priced horse of their class—beauty of form and speed. In breeding the light-harness horse farmers should therefore aim at more than an ordinary driver. They should seek shapeliness and speed—not two-minute speed, but something

around three or four-minute speed to a buggy or road wagon. We would not advise trying for such a horse unless the mare is trotting-bred and fine. The stallion cannot do it all. Having a well-bred, handsome mare breed her to the handsomest and speediest trotter you can find, and the produce will almost certainly be a roadster that will bring a good price. If the colt happens to come a misfit—if he does not measure up to the standard of sire and dam—you will have a common driver, worth very little. That is the danger in breeding for high-class light-harness horses. But do not think you can get a light roadster by breeding to anything but a high-class trotter. There is no other horse comparable to the American trotter in producing light roadsters. The Russians have some handsome-bloodlike and game trotters, but they are scarce in this country and should not be selected as against the type that we have evolved here.

When we come to producing the heavy-harness horse—the coacher—the farmer has many prescriptions thrust upon him. There is a large constituency of trotting-horse breeders who insist that the trotter, bred for generations for the sole purpose of speed, is the best sire of coachers. If he were, never a hoof of foreign-bred coach horses would have been landed on our shores. It was the crying need for something which we did not possess that brought the coachers and the hackneys across the water. The man who breeds to a trotter with the expectation of getting a coach horse must look well to his material. His mare must be decidedly on the coach type and have ample “spread”; that is, she must not be slab-sided, with cat hams. The stallion must be one of the rare types among trotters. They are occasionally found; they would have been more plentiful but for the craze for extreme speed. He must stand 15.3 to 16.2, be full-made in barrel and quarters, with ample length of neck and as much finish as possible.

But it is to his action that special attention must be paid. It is the bare fact that the trotter has been bred for generations to exactly the action that is not wanted in a carriage horse, namely, a long, sweeping, extended stride, with a straddle behind. This is one great difficulty in breeding carriage horses from trotters. When you do get knee action you will generally find very poor hock action and a straddle-gate behind. A horse thus gaited is only half a high-stepper. Avoid wide and dragging hock action at all times. The clean, attractive, trappy Morgan action is what is wanted. It is a good seller.

There are those who insist that farmers shall breed to the

trotter because he is an American production. They insist that they shall boycott the "foreigners" because of their birth. Of course this is merely the narrow view that is inspired by "vested rights." Ownership or interest has much to do with it. Horse-breeding is a matter of the pocket-book, not "patriotism." The farmer should found his operations on this proposition.

Another class of teachers insists on the use of the thoroughbred stallion on draft mares for the production of carriage horses. We warn our readers against it. Let those who can afford to draw blanks from this lottery experiment to their heart's content with it. The temper of the thoroughbred and his stiff-kneed, daisy-cutting action are all against such a system of breeding. Moreover, we earnestly warn against draft blood in the mare when trying for carriage horses. We need not rethresh this old straw; our views on this subject have been repeatedly emphasized.

Turning to the stallions that have been especially bred for the purpose of getting carriage horses we find the French and German Coachers, the Hackneys, and the Cleveland Bays. All have their advocates and all have demonstrated their value when properly mated. Much "trash" has come across under the names mentioned and it is no better than our own home-bred trash. It is all off the same piece and good stuff to let alone. If there is anything in heredity, if there is aught in inherited instincts and tendencies, if blood in breeding is not a mere name, then the surest and most sensible way of producing coach horses is to resort to coach-horse blood. Men do not gather figs from thistles. Every living creature has been brought forth after its kind since the Creation, and will continue to be. The principle of heredity was fixed at the Creation. Do men breed to dairy sires when they want beef beasts? Do men breed to bull-terriers when they want bird dogs? Why, therefore, should a farmer breed to a 2:30 trotter or draft horse when he wants a coacher? Master-breeders have spent their lives in evolving the foreign-bred sires of heavy-harness horses. They have fixed those types; is there any reason why we should not avail ourselves of the fruits of their lifetime of endeavor? We have amply demonstrated the ability of the coachers and the Hackney to reproduce themselves. Many misfits have resulted from injudicious and indiscriminate patronage of such sires, but that was not the fault of the stallions. Properly mated *The Gazette* believes that the best results in breeding for carriage or coach horses will be attained when the breeds

evolved for such purpose are patronized. To conclude otherwise is to reject the foundation principle of all live-stock improvement.

CORRESPONDENCE.

PRACTICAL HINTS ON SCHMIDT'S TREATMENT OF PARTURIENT PARESIS OF COWS.

Editors American Veterinary Review :

DEAR SIRS :—The season of milk-fever being again at hand, I have of late received numerous letters asking information in regard to the iodide of potassium treatment. While I am greatly pleased to thus hear from so many former pupils, friends and even strangers, yet I find myself unable to reply to all of these letters in the manner I would like to do or as the questioners have a right to expect. I take, therefore, this means to convey the desired information.

1. The infusion-apparatus as described in the December (1898) issue of the REVIEW, page 583, can, of course, be constructed at home. Yet there seem to be doubts as to the quality of the rubber-tube, the kind of milking-tube, etc. In order to be practical I have consulted with Messrs. J. Reynders & Co., 303 Fourth Avenue, New York City, and they have constructed a very useful apparatus of good material for \$1.25, which they are ready to ship on receipt of order.

2. The dose of iodide of potassium is 7 to 10 grammes = 105 to 150 grains, according to size and weight of cow; one-half this dose may be repeated within eight hours if no effect is visible from the first infusion.

3. The preparation of the solution is of the greatest importance. The idea is to make the solution aseptic, *i. e.*, free from any germs by which the udder may become infected internally, which surely will result in mastitis (garget). Usually there is no difficulty in being supplied with clean boiling water in a house kitchen. I allow the boiled water to stand for a time to settle, then slowly pour it through filter-paper into a pint bottle (salt-mouth) containing the iodide of potassium. The bottle has been sterilized at home and closed with disinfected cotton. As soon as the solution has cooled to body temperature (100 F.) it is ready for infusion. In the meantime I have the udder thoroughly milked, washed with soap and water, and disinfect it myself, especially the teats. For this purpose I prefer creolin (Pear-

son), although lysol was originally recommended, and the more common antiseptics may be efficient enough when these are not at hand. I place the udder for disinfection and infusion upon a white oil-cloth, because I have experienced that cows sometimes suddenly react during the infusion with a hind foot, throwing up dust, which must be guarded against most scrupulously. Then I introduce the milking-tube into one teat after another, while an assistant is pouring the iodide solution into the funnel, dividing it equally into four parts for the four teats. I also have him cover the funnel with filter-paper to prevent contamination of its contents. The massage of the udder during and after infusion I perform now myself, because I consider it quite important for proper distribution of the medicine.

I have ceased to apply any other internal remedy, and fare just as well, although in certain cases caffein may be indicated and should then be given. This successful treatment is a great pleasure to me, and the only trouble is that I cannot get enough cases to treat, while formerly I dreaded them. There is no doubt that all who apply this treatment intelligently will have the same good results, while an occasional failure should not discourage. Finally I wish to advise all colleagues to keep short records of treatment for future statistical material.

OLOF SCHWARZKOPF.

PROMOTING THE PRIVATE APPLICATION OF THE TUBERCULIN
TEST.

The following typewritten letter has been sent to many veterinarians in New York State :

NEW YORK STATE BOARD OF HEALTH.

TUBERCULOSIS COMMITTEE.

SYRACUSE, N. Y., May 15, 1899.

DEAR DOCTOR :—We mail you under separate cover, a few circulars of information and instruction regarding bovine tuberculosis, which we hope you will distribute to cattle owners who are your friends and patrons. We are making an effort to encourage the more general private application of the tuberculin test. Much practical experience in its use, as well as the testimony of others having larger experience, makes us firm believers in its value to dairymen, not only in purifying their herds, but also of pecuniary advantage to them in making it possible for them to weed out tuberculous cattle early in the course of the disease before they have become such a prolific source of infection as to contaminate an entire herd, resulting in great loss to the owner. Besides this there is a further advantage greatly

appreciated by the more intelligent consumers of dairy products, that of being enabled to furnish them with pure products, guaranteed the fruit of healthy stock.

We cannot see how in the light of present knowledge, cattlemen will continue to purchase stock to replenish or enlarge their herds, without first taking the precaution to apply the tuberculin test. We believe the time is coming when every cattle owner will have his own cattle tested, and never buy cattle without submitting them to this test, but this condition will not be realized until veterinarians more generally appreciate its importance and advocate its use.

Cattle-owners naturally look to their veterinarians in whom they have confidence, for instruction and advice regarding their stock. It should be the duty of veterinarians to instruct and advise them regarding stock and stable sanitation, as well as the means and methods for preventing the development and spread of infectious diseases, and we hope soon to see more work done in this line by individual veterinarians and veterinary societies.

To encourage the private application of the tuberculin test, we will furnish for a time, to any or all cattle-owners applying for it, sufficient tuberculin to test their herds, provided they will require the veterinarians making the tests to furnish us with a complete report of their work on blanks furnished by us. We should be pleased to have you promptly report to us, any cattle you may know or suspect have tuberculosis, as we desire in all cases, to take such action as will prevent further spread of infection to cattle or man.

Yours very respectfully,

F. W. SMITH, M. D.,
Sec'y Tuberculosis Committee.

DR. PERLEY'S CASE OF EXTRA-UTERINE PREGNANCY.

ITHACA, N. Y., May 15, 1899.

Editors American Veterinary Review:

DEAR SIRS:—I am interested in Dr. Perley's case report of "Extra-uterine Pregnancy," in the May issue of your journal. I do not follow his description. His statements are paradoxical. As I read the description, it seems that on October 16, the mare had labor pains and expelled the foetal membranes, and that on the following day the "os" was "dilated" and uterus "was pretty well contracted," while on the floor of the latter a completely healed cicatrix was recognizable.

Are we to understand that the foetus dropped through the uterus at least 6½ months prior to this date (he states it was of normal volume) and all connection between uterus and foetus ceased, while the membranes retained their vitality and the uterus its volume without foetal relations?

And did the foetus, without uterine connection, proceed to develop a new sac about it and the broken umbilical vessels become newly attached? It would add greatly to the interest of the case if Dr. Perley could tell us if the foetal membranes expelled October 16 belonged to the extra-uterine foetus or to an interloper, the result of a second impregnation which might have occurred several months prior to the death of the mare, and the expulsion of a small foetus might have escaped notice, especially if the mare was allowed to run at pasture or pigs were admitted to the premises where the patient was kept. Certainly there should be some amendment to the apparently paradoxical relations between the placenta within the uterus and the foetus without—the uterus being wholly closed. Truly yours,
W. L. WILLIAMS.

SOCIETY MEETINGS.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

(Continued from page 150.)

Dr. James S. Kelly, of St. Joseph, Mo., was next called upon, and responded by reading the following paper, entitled

TUBERCULOSIS IN SWINE.

In the preparation of this paper regarding the general characteristics of tuberculosis in swine, it is not my purpose to introduce new discoveries, neither will I elaborate on the general pathological changes produced by the tie presence of the bacillus. But I hope to plainly state the facts as they have occurred to me during my limited experience and to define the macroscopical appearances as seen upon the killing floors, together with whatever I can gather from sources regarding the prevalence and nature of the disease.

We as sanitarians or preservers of the public health, being compensated from the coffers of a generous people who in a measure place their lives as well as the lives of their children confidingly in our hands, cannot deal too rigidly with this most dreaded disease and when confronted with a condition of so grave importance should not give it passing consideration.

Owing to the virulence of the germ of tuberculosis and the susceptibility of the human body to its ravages, and knowing as we do that large quantities of flesh are devoured in a semi-cooked condition, it places the disease of tuberculosis paramount to all others for our most careful observation.

Being the possessor of a ravenous appetite the hog gathers his food from various channels and eats freely and apparently with relish the excrement of all domestic animals. He accepts with apparent gratitude contaminated food which is refused by his co-partners. He is fed upon the refuse of the culinary department, he is the adjunct of economy to all creameries and cheese factories, he receives his portion from the dairy and is allowed the privilege of dining upon the milk from the cow supposedly suffering from "garget" or "weed," which is in the majority of cases tuberculosis. He thrives and lays on fat when allowed to devour the unfortunate ones of his own species, as well as those of the equine or bovine tribe, and it is an undisputed fact that many animals which have succumbed to divers diseases are drawn to the swine feeding lots in preference to a burial, and some unscrupulous dealers count heavily to gain on such fat-producing elements as a dead horse or beef. Thus it is that our swine have great range for infection and owing to the fact that they are usually slaughtered from nine months to two years of age, the disease seldom reaches that stage where emaciation is a marked symptom. In this condition of apparent health together, with the rapidity with which the swine pass through our large packing plants, it requires the most careful observation and the faithful attention of the inspector to detect its presence. A number of cases will present lesions quite obscure, while the majority show well-marked and distinctively well-formed alterations. Tuberculosis in swine, like that of other animals, may be found in any organ or tissue of the body, but, unlike that of cattle, the spleen seems to become one of the primary seats of affection and appears to supply a fruitful soil for its development. The liver, lungs, lymphatics, serous membranes, kidneys and bone lend support largely to its development, and owing to the fact that the seat of infection is largely through the ingesta, we find the abdominal viscera to be quite often affected and sometimes find tubercular ulcers situated along the lining of the intestines and tubercular products in a stage of development along the submucuous or muscular coats.

The spleen upon microscopical examination presents broad, flattened nodules, yellow in color, gradually blending into the

normal color of the organ itself. The nodules usually appear freely over the surface of the spleen, are somewhat elevated in the centre, and measure from 1-16 to 3-4 inch in diameter. On section they appear as tough elastic or fibrous tissue containing more or less of a yellowish product near their centre, which may be softened into purulent matter or may be charged with a gritty product of a calcareous nature. On section of the entire organ we find deeply embedded in the parenchyma rounded well-formed nodules of a soft consistency, free in number, and resembling cheesy deposits. The tissue of the spleen seems normal in consistency, color and texture, but the organ itself is usually very much enlarged.

The liver, somewhat enlarged by the process of chronic inflammation during the nodular development, may be studded over its entire surface with small yellowish tubercles usually appearing in the type of miliary tuberculosis. I have noticed those cases where the liver was completely loaded with tubercular product and not only did they appear on the surface but were found in large numbers in the substance of the gland, often in such quantities as to destroy, by crowding, large areas of gland tissue and consequently greatly impair the healthy function of the organ. However, in well marked generalized cases of tuberculosis we do not always find this organ to be the seat of extensive disease.

The presence of tubercular products in the lymphatic glands is manifest even in the earliest stage of the disease and with progression the glands undergo all the changes peculiar to its development; often the disease is confined to the gland structure alone and so long as it remains confined to such glands it does little or no injury to the animal. In some cases, however, the gland undergoes a complete change. Its parenchyma gives way to the formation of a calcareous tumor. In such cases also little harm can arise so long as the condition remains local. Still, in other cases the gland undergoes a retrograde process and becomes broken down and necrotic, such process usually beginning in the centre of the gland extends toward the periphery. This broken down product is carried from the gland by the efferent vessels and poured into the blood stream and thus becomes the primary focus for the generalized contamination of the system.

Tuberculosis spreads from the primary focus in a variety of ways, viz.: by the lymphatic system, by the blood stream, by contiguity of tissue. From the primary focus we experience

the giving off of tubercular matter which enters the lymphatic channel and is carried supported by the lymph fluid and enveloped in the lymph corpuscles to the adjacent members of the lymphatic system. The chain of the glands *en route* of the lymph stream become each in turn subjected to the infection. Many of course under favorable circumstances become affected, giving rise to the formation of new foci. The blood stream spreads the disease from the primary focus and receives the infection, which it carries in two ways, first, the lymph fluid charged with the germ of tuberculosis is poured into the general circulation through the thoracic duct; secondly, the walls of the capillaries adjacent to the primary focus become infiltrated with tubercular products and the bacillus enters the blood stream direct. The generalization, the extent, and the acuteness of the disease depend largely upon the supply of tubercular matter from the focus. Tuberculosis spreads also by the contiguity of tissue; this is exemplified in the manner by which the nodules appear upon the serous membranes and by the infiltration of glands such as we see in tuberculosis of the liver. The germs carried by the lymph or blood stream find lodgment in some tissue or organ favorable to their development, its presence excites inflammation, the germ multiplies and becomes the centre of infection, the leucocytes enter for the purpose of eliminating the system of the irritant. They take up the poison and enter the lymph channels only to die, leaving their load of germs or spores to become the centre of another tubercle. The bacillus having no power of movement within itself can spread only by the aid of one or all of the above methods, and in these advanced cases we can usually find the presence of nodules on various parts of the body, in fact it may appear upon any tissue or organ. The lymphatics most commonly affected in the cases I have examined were the maxillary, guttural, pharyngeal, prepectoral, sublumbar, and those of the visceral organs. By means of contiguity of tissue, I have found the tonsils and pharynx to be extensively studded with tubercular products in cases which were not generalized.

While in a number of cases we find the lungs the seat of extensive tuberculosis and often find the parietes of the chest cavity to be well covered with miliary tuberculosis, I am inclined to believe that the disease rarely enters the system by means of respiration. When we consider that swine produce no sputa and that they are usually slaughtered before the disease reaches an advanced stage and knowing that in the early

stages the excretions are not extensively charged with infectious germs, we become convinced that the dissemination of the disease through the medium of respiration is very rare. In those cases where the disease is manifest in the chest cavity, we find it usually in the miliary form, due possibly to the fact that the disease has not reached its more advanced stage wherein the nodules become conglomerated and unite to form larger masses. In the lung substance we find small necrotic patches of tubercular products, which often in the process of development become converted into purulent matter, coalescing with surrounding necrotic patches to form large tubercular abscesses destroying more or less of the lung tissue.

When the germs of tuberculosis are introduced into the system by means of the ingesta they become transmitted through the intestinal walls in the absorbent process, large numbers of adult bacilli, no doubt, are destroyed by the secretions of the stomach, leaving only the spores to escape into the bowels for absorption. This absorption takes place by means of the lacteals or venous circulation of the portal system. Immediately upon the advent of the germs a conflict ensues between the invaders and the phagocytes of the intestinal apparatus. The microphages, which comprise the white globules of the blood and a part of the lymphatic corpuscles, leave their vessels by diapedesis, and by virtue of their amœboid movements station themselves throughout the invaded tissue and begin active battle with the enemy. They seize the germs, englobulate them and attempt to kill, digest or break them up. This destructive or digestive action is usually performed in some of the deeper lymphatic organs where the phagocytes receive strength and support by the peculiar function of the lymph glands. Once the invaders become englobulated the phagocytes make their course directly to these deeper organs to complete the destruction, which is done by the action of their secretions. During this transportation the secretions of the microbe often become too severe for the phagocytes, causing them to become sick, weakened, and relaxed, and finally succumb to the action of the microbic secretion, the protoplasm loses its continuity and dissolves itself, thereby liberating the invading germs. This dissolution of the phagocytes often takes place in the interior of glands, whence they went to conclude the conflict. The liberating of the germ in a new field makes possible a new seat of infection, when the liberated germs have yet sufficient vitality to grow, and when the weakened or dead microphage is not

englobulated, together with its aggressor, by the larger yet less ambitious helper, the macrophage. These macrophages are large, almost indolent cells, with little power of movement, and stationed about the system where most needed to assist in the phagocytary protection. Their action in englobulating and digesting poisonous germs is similar to that of the microphage; they are composed of fixed connective tissue cells, endothelial cells of vessels, cells of the spleen, bone marrow, in Peyer's patches, and pulmonary alveoli.

We are aware that germs of tuberculosis are often introduced into the system which find no lodgment there. Again the system may be contaminated and extensively affected from one introduction, and that introduction may be trivial. There are those cases that develop with great rapidity, while others will remain dormant, apparently gaining but little upon the animal economy. The susceptibility of the system, the extent and rapidity of development, depend upon the virulence of the infection, the extent or supply of tubercular matter, the phagocytory aptitude of the cells. The latter varies greatly in different animals, and can be modified and reduced in all by poor sanitary surroundings and by disease. Once the animal becomes weakened or debilitated by disease or poor hygienic surroundings, the germs which may be in a dormant or inactive state take advantage of the weakened phagocytory elements and become inure and active, thus overpowering a system which under favorable surroundings enjoyed a certain degree of immunity.

The bacilli of tuberculosis having been absorbed with the ingesta and entered into active conflict with the phagocytes, become scattered in the deep organs throughout the abdominal cavity. Phagocytes charged with irritating properties usually make their way into the lymph channels and are carried with the lymph stream to the various organs. Many, no doubt, are carried to the liver by the portal circulation, thus giving rise to a possible infection of this organ in the primary stage. Even though they reach the liver they are not always permitted to establish an infection, for they are usually transported to nearby lymphatics for the purpose of continuing the conflict; still this is not always the case, the germs may become liberated in the liver and gain a foothold, thereby producing a minute, circumscribed, chronic inflammation by which process the tubercular nodule is developed, growing rich in giant cells with the presence of more or less bacilli.

The spleen, apparently one of the primary seats of infection

in swine tuberculosis, possibly acquires its infection through its office as a phagocytory protector and a receptacle for the storing away of white globules. Venous blood leaving the spleen is vastly more rich in white globules than is arterial blood entering that organ. The spleen is possessed of the double function of destroying worn-out and degenerated globules and building up, strengthening, protecting, and dealing out white globules to the circulatory fluid as they are needed. This organ while having the power to build up and protect white globules, is known also to disintegrate sick and enfeebled ones. Now that the phagocytes being charged with germs of tuberculosis have entered this organ to receive strength and protection, and being sick and enfeebled they may become disintegrated and devoured by the great amœboid cells, their bacillus may be liberated, making infection of this organ possible.

Rarely if ever is the practicing veterinarian called upon to treat tuberculosis and for that reason little is known of its ante-mortem appearances. However, we can expect the presence of such lesions as are commonly seen in other animals affected with the same malady, such as falling off in flesh, slightly elevated temperature, staggering gait, possibly labored breathing and an impaired appetite.

Tuberculosis in swine seems to be of rare occurrence, especially in the Western States. In these localities swine are fed largely on cereals and are not exposed so much to contagion as swine raised in the Eastern States, where large numbers are fed annually from the waste of dairies, creameries, and cheese factories. Still, I am of the opinion that the disease is far more prevalent in the West than is generally supposed. I have found tuberculosis in a number of hogs which came from our Western States, and am satisfied that the percentage affected is more liberal than it should be.

I have never had the pleasure of experimenting by inoculation. However, the experience of others has taught us that the disease is easily transmitted to other animals, that the poisonous germs from swine affected with tuberculosis is exceedingly virulent, that the disease becomes generalized much earlier and runs a more rapid course, due possibly to the rapid assimilation and building up of tissue, and that the dissemination of the germs in the muscular tissue exceeds that of other animals. The liquor sanguinis pressed from the muscular tissue of a hog affected with tuberculosis will produce fatal tuberculosis when injected into a guinea pig.

The conclusions which I have drawn from my experience are, first: that the hog is the most susceptible of all our meat producing animals; that owing to the age at which he is slaughtered he seldom reaches the extreme advanced stages and is scarcely ever emaciated to a marked degree; that, together with the rapidity of slaughter, and the location of the diagnostic tubercles, it is liable to escape the eye of the most careful inspector; that, owing to the generality of the disease and the dissemination of poison in the muscular tissue, the meat should be considered innocuous; that, owing to the amount of heat which the spores will resist, and knowing that large quantities of meat are consumed while yet insufficiently cooked to destroy these spores, and knowing that they are within themselves exceedingly dangerous to the human body, I would recommend the condemnation and destruction of all swine affected with tuberculosis.

DISCUSSION OF DR. KELLY'S PAPER.

Dr. Stewart: According to the arrangements of the programme, it falls to me to open the discussion on the paper just read. I desire to compliment the essayist upon this most excellent presentation of a very interesting subject. The essayist has followed out the disease processes so completely that there is little room for discussion along that line. However, I may be able to offer a few remarks that will stimulate thought to others and which they will offer in this discussion. The paper deals very largely with phagocytosis, and as I understand the theory it is a correct presentation of the subject. There are some points, however, which I think it would be valuable for us to consider. There is one feature of this theory of phagocytosis which the essayist did not touch upon, and which to me is a most interesting one. I refer to the problem of the manner or process by which the bacillus tuberculosis finds entrance into the solid tissues when introduced into the respiratory or alimentary tracts. It seems that ordinarily the epithelial structures are capable of resisting the invasion unless there be an abrasion of the superficial layers. I have no recollection that bacteriologists claim that the tubercle bacillus has motor power or has the power of migration. There is a theory that the bacillus, probably through a substance which it secretes, is capable of irritating the mucous surfaces and stimulating the phagocyte to reach through the superficial structures and grapple with the bacillus in an endeavor to effect its destruction, and upon withdrawal of the phagocyte the bacillus is carried within the solid tissues.

The essayist held that it was only when lymph-glands had undergone necrotic destruction that the bacilli were carried forward toward the general circulation by enclosing phagocytes. I am inclined to believe phagocytes are capable of and doubtless do escape from tubercular lymph-glands before extensive necrotic changes occur, and that the invasion is usually beyond the point showing gross necrotic lesions. This seems to be true in cases of tubercular invasion of serous membranes. Apparently the tubercular development is in a like stage of progress over large areas of the serous surfaces. If the organism was not carried beyond the point where necrotic changes were plainly visible, then we would find that, beginning with the point of invasion, the changes would be more complete and more aged than in other parts of the affected membrane. If I remember correctly, it is not often that we can see the various stages of development so plainly marked, showing the gradual advance from one point and spread out over the serous surfaces. It is probably true that in most cases in swine the infection occurs through the alimentary tract rather than through the respiratory passages, as evidenced by the lesions found in the lungs being apparently of more recent development than those which are found in organs adjacent to the intestinal canal. I was interested in the statement that swine produce no sputa. Persons who have to do with handling swine are well aware that it is difficult to find a bunch of hogs which have been moved to the slaughter-house pens, which will not contain a number that do not cough more or less violently when made to move about briskly. The mucous membrane lining the respiratory tract of swine certainly secretes mucous just the same as does like structures in other animals, and I am satisfied that I have observed swine expectorate or throw out mucous when coughing, and I see no reason why the bacilli of tuberculosis might not escape from the lungs of swine affected with this disease by means of sputa.

I fully agree with the essayist, that if tuberculosis is found in swine that the flesh should be condemned and not used for food purposes. There are a number of gentlemen present who have had large experience in post-mortem examinations of swine, who doubtless can contribute materially to this discussion, and I trust they will do so.

Dr. McCurdy: I would like to ask Dr. Kelly if he has noticed what seems to me to be a peculiarity of tuberculosis of the pleura in swine, which is the absence of adhesion between

the two pleural surfaces, visceral and parietal, whereas adhesions are quite common in pleural tuberculosis in cattle.

Dr. Kelly : I would say that I have never noticed a case of adhesion of the lung to the chest wall in case of tuberculosis in swine. The tubercular nodules seem to be beneath the parietal pleura, causing a bulging at places where the tubercles developed. The tubercles are usually flattened. I have never noticed them to be pedunculated as in the ox.

Dr. McCurdy : I think this point is very important. I have seen a good many cases where the lung is adherent to the thoracic wall and the lung is removed with difficulty, but in tuberculosis the lung is not adherent ; it comes out *en masse*.

Dr. Forbes : I think this association is indebted to Dr. Kelly in bringing this subject to our notice. The prevalence of tuberculosis in swine is becoming so frequent that it forces itself upon our attention. We are also indebted to him for the manner in which he has brought it to notice, having presented it in such a graphic and interesting way. He has brought the attention of the meeting to the fact that the spleen seems to be a primary seat of the disease. The spleen being an accessory organ of the digestive system, and the abdominal form of tuberculosis being the most frequent in swine, it is easy to account for this. It has been noticed in tuberculosis in cattle, that the spleen is seldom, if ever affected, the nodules sometimes found on the surface being confined to the capsule, and do not penetrate the spleen tissue. The difference in the anatomical conformation of the two animals would seem to account for this. In cattle, the spleen is attached to the greater curvature of the rumen, and not in close proximity to the true stomach, while in hogs it is almost in direct contact with the true stomach. In speaking of phagocytosis, it was stated by the essayist that the phagocytes seized hold of the bacilli, and immediately transported them to the deeper organs, to complete their destruction, the spleen being one of the principal organs. During this transportation the bacillus may overcome the phagocyte, the latter becomes sick, from its effort to digest the microbe, or from the effect of the microbic secretion upon it, and when it reaches the spleen the englobed microbe will be able to liberate itself, and proceed to form the nodules characteristic of it. Another point which interested me was the point brought out by Dr. Stewart, regarding the entrance of the bacillus into the tissues. Dr. Kelly, I think, stated in his paper that the phagocytes were of two kinds, microphages and macrophages, the

former being white blood corpuscles and the latter fixed connective tissue cells. It is possible that the bacilli may be carried by the microphages to the capillaries of the internal organs, where they find conditions favoring their entrance into the tissues. We know that the leucocytes are gifted with movement, evidenced in the process of diapedesis, and one theory of this process is, that the leucocytes penetrate between the cells, or that they dissolve the cell cement, causing the endothelial cells to contract, allowing the corpuscles to pass through readily, and we could suppose that bacilli could be carried through in this way. In the exudate of inflammation we often find large numbers of red globules, which, like the tubercle bacillus, are not gifted with movement, but have escaped through the openings made by the leucocytes. Of course, this is only a theory, and is thrown out in the hope that it will result in stimulating others to an expression of opinion.

Dr. Stewart: The last speaker has shown a way by which the micro-organism may be transported from the blood stream into the cellular tissues, he leaves unexplained how the micro-organism gets from a mucous surface into the deeper tissues. The problem of the frequent development of tuberculosis in the structure of the spleen in swine is an interesting one. The essayist has said that the spleen is a source of regeneration of microphages and it would seem that if a microphage, a sick microphage, succeeded in conveying his burden to the spleen he might get sufficient help to destroy it. I trust that the essayist in his concluding remarks will discuss that point.

Dr. Kelly: While I claim that the spleen has the double function of recuperating disabled microphages as well as developing new ones, it is probable that sick ones or those which are overcome by the bacilli are disintegrated, liberating the bacilli, and it is in this way they secure a lodgment in the spleen.

Dr. Forbes: Regarding the point of Dr. Stewart, as to how bacilli gain entrance to the tissues from an epithelial surface, I would say, that the epithelial cells of a mucous surface, being able to act as phagocytes, could take up the organism, and in the fight which ensues, the cell may be overcome and the microbe get deeper into the tissues.

Dr. Cock: There might be one question arise as to how the bacillus enters the mucous membrane. Under certain conditions we may find mucous from the lungs of the human which contain bacilli, while they are not affected with the disease at all. In order for the germs to enter there must be a lowering

of the vitality of the mucous membrane. I believe that the way the bacillus enters the mucous membrane, it throws out a substance or ptomaine which destroys the connecting substance between the cells and in that way finds passage through the mucous membrane.

Dr. Kelly : I had always thought that the germs or spores of tuberculosis were passed through the intestinal mucous membrane by osmosis, during the process of absorption, in this way gaining entrance to the lacteals and are carried to the lymph channels. It is generally understood that the disease spreads, in one way, by contiguity of tissues ; after gaining entrance to a tissue or organism it may spread from the centre by its own growth or prolongation.

Dr. Stewart : Before closing this subject it might not be amiss to suggest that the organism being a vegetable may vegetate and extend prolongation through the superficial structures of the mucous membrane and in this way find entrance into the deeper tissues. Some writers have held that the spores were small enough to be carried in during the process of osmosis.

(*To be continued.*)

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was called to order by President Robertson, at the New York Academy of Medicine, 17 West 43d Street, on May 3d, at 8 o'clock P. M.

The following members were present at roll-call : Drs. Bell, Clayton, Dickson, Ellis, Foy, Gill, Goubeaud, Keller, MacKellar, O'Shea and Robertson. Visitors, Drs. L. Nicolas, N. Reichman and G. B. Morse.

Dr. Dickson read a very interesting paper on "Azoturia in the Dog,"* which was freely discussed.

Dr. Bell : I was very anxious to hear Dr. Dickson's paper on "Azoturia in the Dog," as a short time ago, in answering an inquiry from Dr. Dickson in relation to this condition, I stated that I had had a case that day. The symptoms observed by me, however, were more like those described by Dr. Leech than those observed by Dr. Dickson. My case was that of a fox terrier, abnormally fat ; had eaten breakfast, felt good, ran out and suddenly became paralyzed in the posterior limbs. He sat up in front, but could not use hind legs to hold up his weight.

* Published elsewhere in this issue.

I gave calomel, which produced catharsis, and the case terminated favorably. I have had another case since in a dachshund; symptoms similar, treatment the same, recovery. If it is not azoturia, what is it?

Dr. Dickson: I have often had cases in which they would drag the hind legs for two or three weeks, but yield to treatment, but they were somehow different from the cases described in my paper.

Dr. Bell: Did you make an analysis of the urine?

Dr. Dickson: No.

Dr. Robertson: Did you observe any appearance of jaundice?

Dr. Dickson: Yes, a slight trace of it in the second dog. I did not look close enough at the first one to observe it.

Dr. Robertson: The discoloration on this blotter from the sample of urine you furnished us, looks as though it might be due to bile.

Dr. Gill: One or two points in Dr. Dickson's paper bear out his diagnosis, viz.: the hardness and swelling of the gluteal muscles, with the characteristic appearance of urine, the fact that it occurred in plethoric animals, with lack of exercise, etc. I think the coloring matter in this sample of urine resembles hæmoglobin rather than bile, and, with Dr. Dickson's consent, I will have it tested at the Board of Health Laboratory and report the result of the test at the next meeting.

Dr. Goubeaud reported a similar case to Dr. Dickson's in a fox terrier let out to urinate, came in stiff and trembling, muscles hard, and could not stand; was put on strychnine and calomel; died. Post-mortem revealed nothing wrong with intestinal tract.

Dr. Gill gave a discourse on "Some Important Veterinary Events of Next September." This subject was fully discussed.

Moved and seconded, that Drs. Dickson and Gill receive a vote of thanks for their papers. Carried.

Judiciary Committee reported progress.

Moved by Dr. Clayton that the Secretary be authorized to issue certificates to members who are shown to be square on the books and pay an additional one dollar to cover expenses of engrossing, mailing, etc., instead of five dollars as heretofore. Seconded. Carried.

The Secretary was so authorized by the President.

ROBERT W. ELLIS, D. V. S., *Secretary.*

WISCONSIN SOCIETY OF VETERINARY GRADUATES.

The annual meeting of the society was held February 9th, 1899, at Madison, Wis., in the rooms of the State Agricultural Society.

The meeting was called to order at 2 P. M. by the President, Dr. B. L. Clark, Monticello.

Present: Drs. B. L. Clark, Monticello; W. G. Clark, Marinette; H. P. Clute, Marinette, Wis.; L. A. Wright, Columbus; Chas. Schmitt, Dodgeville; J. F. Roub, Monroe; G. Ed. Leech, Milwaukee; D. Roberts, Waukesha; R. S. Heer, Plattville; A. H. Hartwig, Watertown, and E. L. Morgenroth, Boltonville. Visitor, Dr. E. R. Flack, Manitowoc.

The minutes of the last regular meeting were read and approved. The Secretary's report was read and accepted. The Treasurer's report was read and accepted.

Under the head of unfinished business the application of Dr. J. P. Laws for honorary membership was taken up. Moved by Dr. Clute and seconded by Dr. Hartwig, that the application be granted. Carried.

The charges preferred against Dr. R. A. Higgins and Jno. T. Unerth for a violation of the code of ethics by holding office in a live stock insurance company and giving said company free veterinary services were taken up and discussed by Drs. Hartwig, Leech, Clark, Schmitt and Roberts. Moved and seconded that R. A. Higgins and Jno. T. Unerth be expelled from the association. Carried.

The application for membership of Dr. E. R. Flack was presented and referred to the Board of Censors. They reporting favorably, the application was balloted on, and Dr. Flack was declared elected to membership. On motion a recess was taken for ten minutes.

When called to order the subject of veterinary legislation was taken up. The bill presented at the last session of the legislature was read by the Secretary. Discussed by Drs. Hartwig, Leech, Clute, W. G. Clark, Schmitt, Flack and Roberts.

Moved by Dr. Clark, and seconded by Dr. Leech, that the President appoint a committee of three to draw up an amendment to the present veterinary law providing a penalty for violation of the same. Carried. The President appointed as a committee Drs. Clute, Leech and Roberts.

Reading of Essays.—Dr. Chas. Schmitt read a paper on "Parturient Apoplexy," in which he discussed the different pathological conditions in detail and reported several cases and

methods of treatment employed. Discussed by Drs. Heer, Roub, Clute, Hartwig, Roberts and Leech.

On motion the society adjourned to meet at 7.30 P. M.

Evening Session.—The meeting was called to order at 7.30 by the President. The discussion of parturient apoplexy was resumed by Drs. Roub, Clute, Roberts and Hartwig. On motion, the essayist was excused and a vote of thanks tendered. Carried.

Dr. R. S. Heer reported a case of fracture of the os pedis and sloughing of the hoof, and after a time sloughing of the hoofs of the other three feet, probably due to laminitis from standing so long. On motion, a vote of thanks was tendered Dr. Heer for his communication.

The place of holding the semi-annual meeting was discussed. On motion it was decided to hold it in Milwaukee.

On motion it was decided that the President and Secretary appoint one other member as a committee of arrangement for the semi-annual meeting.

The election of officers for the ensuing year resulted as follows: President, D. Roberts, Waukesha; Vice-president, J. F. Roub, Monroe; Secretary, W. G. Clark, Marinette; Treasurer, Chas. Schmitt, Dodgeville. Censors—Drs. A. H. Hartwig, Watertown; H. P. Clute, Marinette, and R. S. Heer, Plattville.

It was moved and seconded that the members make a free-will offering of papers for the semi-annual meeting. Carried.

Dr. Clute volunteered to read a paper on "Tuberculosis," Dr. Hartwig on "Parturient Apoplexy"; also Drs. Morgenroth, Schmitt and Wright, subjects to be chosen later.

On motion, Dr. Wright was tendered a vote of thanks for his services as President.

The Secretary was instructed to mail a postal card with each programme that the committee on arrangements might know how large an attendance was to be expected.

On motion the society adjourned to meet in Milwaukee in September, subject to the call of the President, Secretary and Dr. Leech.

W. G. CLARK, M. D. C., *Secretary*.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

The Committee of Arrangements of the American Veterinary Medical Association are holding meetings and perfecting the details of the "Veterinary Jubilee." Each sub-committee is up with its work, and there is every promise that those who

visit New York next September will be repaid tenfold in profit and pleasure. The place for holding the convention was the chief subject of consideration at the last meeting, and it was the general opinion of the members that the Academy of Medicine, the home of the County Society, would be the most central and convenient to the other theatres of action, being but a short walk from the American Horse Exchange, the sales ring of which has been secured for the clinical demonstrations, while it is also convenient to Eastman's abattoirs, where the pathological display will be located. There are plenty of hotels in close proximity to the Academy of Medicine, and the sub-committee was instructed to pursue its work by securing the most advantageous hotel to be designated "headquarters."

While the chief item in the entertainment of the guests has not been definitely settled those who contemplate attending may be priming their stomachs for an old-fashioned Rhode Island clam-bake, at one of the near-by seaside resorts, to reach which a steamer will probably be chartered for the exclusive use of the guests, and if the destination of the excursionists is as suggested, the association and its friends will enjoy a fine sail through New York harbor, the Narrows, past the great naval fortifications, and out to sea, skirting some of the grandest scenery which this section affords.

It is anticipated, and the committee are enthusiastically encouraging the idea, that as many as possible will bring the lady members of their households, as New York affords many features of entrancing interest to the fair sex, particularly in the great shopping districts. Not being possessed of an exposition to entertain the guests with, as has been the case with Nashville and Omaha, yet there are so many permanent points of interest to those not familiar with the city that some weeks could be consumed without exhausting her countless resources for entertainment and interest. The attendance of ladies at the past few meetings has been such an added charm to the occasion that the committee emphasizes its desire to enlarge upon the innovation this year.

It is certain that the banquet will be held on the evening of the second day, and the committee are pursuing their investigations with the object of securing a satisfactory *menu* at a more popular price than hitherto, to the end that all will attend.

Dr. James L. Robertson, President of the New York County Veterinary Medical Association, who is one of the oldest members of the A. V. M. A., and for many years its treasurer, will

in all probability welcome the Association to Gotham. If he simply smiles on the visitors they will feel that the welcome is sincere, and that they may consider themselves at home.

The suggestion of Secretary Stewart that the discussion upon Meat Inspection begun at Omaha be continued in New York, is certainly a valuable one. The immensity of the subject, and its importance surely justify it.

Since the announcement made in the May REVIEW the following papers have been promised for the programme of the coming meeting: "The Suppression of Tuberculosis in Pennsylvania," by Dr. Leonard Pearson; "Notes on the Healing Process in Ovariectomy," by Dr. M. H. Reynolds; "Surgical Interference for the Cure of the Cribbing Habit," by Dr. S. J. J. Hargar, the operation to be demonstrated before the association; "Disinfection," by Dr. E. A. A. Grange, demonstrating some agents and methods; and probably "Schmidt's Treatment of Parturient Paresis," by Dr. Olof Schwarzkopf, with statistics gathered from American sources.

MASSACHUSETTS VETERINARY ASSOCIATION.

The fifteenth annual meeting was held April 26th, at the Parker House, Boston, Mass., and the following members were present: Drs. Beckett, Burr, Cronon, Emerson, Frothingham, Harrington, Howard, LaBaw, Lee, Lewis, McLoughlin, Osgood, Parker, Penniman, Peters, Peterson, Pierce, Plasket, Rogers, Williams, Winslow, Winchester, Stickney, Etienne, Clark. Guests of the evening were: W. O. Underwood, A. B., lecturer on Warranty and Evidence at Veterinary Dep't, Harvard University; Leander F. Herrick, of the Massachusetts Cattle Commission; James Kimball, of the Board of Health of Springfield, Mass.

At the business meeting the following officers were elected for the ensuing year: President, Langdon Frothingham, M. D. V.; First Vice-President, Howard P. Rogers, M. D. V.; Second Vice-President, Daniel Emerson, M. D. V.; Treasurer and Secretary, Henry S. Lewis, M. D. V. Executive Committee—W. L. LaBaw, D. V. S., Geo. Lee, D. V. S., E. T. Harrington, M. D. V., G. P. Penniman, D. V. S., B. D. Pierce, M. R. C. V. S.

At the close of the business meeting the association adjourned to the banquet hall, where toastmaster Dr. J. F. Winchester called on the following gentlemen; W. O. Underwood, J. M. Parker, L. F. Herrick, Langdon Frothingham, James Kim-

ball, J. R. McLoughlin, Austin Peters, P. J. Cronon, L. H. Howard, Alexander Burr, B. D. Pierce, H. S. Lewis, J. H. Stickney.
H. S. LEWIS, *Secretary*.

THE WESTCHESTER COUNTY V. M. SOCIETY held its annual banquet at Morello's, New York City, on Tuesday evening, May 16th, and we acknowledge the courtesy of an invitation to be present, but we were forced to regretfully decline at the last moment. The committee in charge were Drs. R. R. Morrison, M. J. Tewey and W. B. Moorehouse.

ALUMNI MEETINGS.

ALUMNI ASSOCIATION OF THE AMERICAN VETERINARY COLLEGE.

This association held its annual meeting in the lecture-room of the building on Tuesday afternoon, April 4, and reelected the officers of the preceding year—Dr. Wm. H. Pendry, President; Dr. Charles E. Clayton, Secretary. The business of the meeting consisted chiefly in discussion of the "Silver Anniversary," to be held in September, 1899, during the week of the convention of the American Veterinary Medical Association, and much enthusiasm was indulged in with reference to that auspicious occasion.

The twenty-fourth annual dinner took place at the Hotel Metropole in the evening, and a goodly number of members and friends of the college occupied seats around the tastefully arranged tables. Dr. E. B. Ackerman, of Brooklyn, was toastmaster, and the following stated toasts were responded to: "The Value of a Professional Education," Dr. F. D. Weisse, President of the Board of Trustees; "Our Sister Profession," Prof. J. B. Stein; "The Horse and the Fair Sex," Hon. Hosea B. Perkins—a wonderfully entertaining orator of eighty years; "The Automobile," Prof. Roscoe R. Bell, who thought that they do not and will not compete with the horse in his true sphere; "The Horse," Prof. J. L. Robertson; "The Army Veterinarian," Dr. W. Horace Hoskins; "The Old Man," Dr. William H. Pendry. Representatives of various classes also made short addresses, among them Drs. Wm. Herbert Lowe, H. D. Hanson, Robert W. Ellis, J. B. Hopper, Charles E. Clayton, W. B. E. Miller, and others. A cablegram was read from Prof. Liautard, announcing that while he was far away his heart was

right at the banquet table, and many affectionate words were spoken concerning him, and his health was drank with enthusiasm.

M'GILL UNIVERSITY, FACULTY OF COMPARATIVE MEDICINE
AND VETERINARY SCIENCE.

The first annual reunion of the alumni association of this university was held in Montreal, Feb. 11, which was attended by a large number from Canada and the United States. Dr. John R. McLaughlin, of Massachusetts, occupied the chair when the meeting was called to order at 2 o'clock. Dean McEachran being absent on account of sickness, his address of welcome was read by Prof. Baker, at the conclusion of which the election of officers took place, resulting as follows: President, Dr. John M. Parker, Haverhill, Mass.; Secretary, Dr. D. Comstock, Albany, N. Y. Executive Committee—Prof. M. C. Baker, Montreal; Dr. N. P. Hinkley, Buffalo, N. Y.; Dr. A. W. Clement, Baltimore, Md.; Dr. N. P. Walsh, Huntingdon, P. Q.; Dr. Gorham, Bellows Falls, Vt.

An adjournment then took place to visit the new buildings at the university, which were a pleasant surprise to the older alumni. The evening was spent in pleasant reunion and dinner at the Windsor Hotel, at which forty-five sat down to a delightful *ménu*. Dr. Parker occupied the chair, and toasts were responded to as follows: "The Queen," the national anthem, "God Save the Queen," being sung; "The President of the United States," the "Star Spangled Banner" being sung; "McGill University," Dr. G. P. Girdwood; "The Massachusetts Alumni Association," Dr. Jno. R. McLaughlin; "The Dean," Prof. Wesley Mills; "The Graduates," Dr. C. J. Alloway and Dr. Sugden; "Professors of the Faculty," Dr. Baker; "The Ladies," Dr. Gerald Dillon. Numerous vocal selections were rendered by members, and the opinion of all was that the reunion was delightful and the association successfully launched.

NEWS AND ITEMS.

WHO will take the initiative in organizing "The Veterinarians' Mutual Benefit Association"?

THE PAST SPRING has on the whole been the best "veterinary season" since 1893. Secretary Stewart says his letters from all over the country are very cheerful and encouraging.

DR. H. D. GILL, of New York, was one of the veterinarians of both the Baltimore and Philadelphia horse shows.

"THE REVIEW GROWS BETTER WITH EACH VOLUME, and I wish it continued success."—*E. M. Nighbert, Mt. Sterling, Ill.*

DR. BRIMHALL, field veterinarian to the Minnesota State Board of Health, is spending considerable time in the State Board of Health bacteriological laboratory.

DR. J. E. RYDER's paper on "Examinations for Soundness," read before the February meeting of the Veterinary Medical Association of New York County, was recently printed in the *Horse Fancier*.

I REGRET that there are no other veterinary surgeons of any qualification on this island whom I could recommend to become subscribers to your excellent REVIEW.—*D. Thompson, M. R. C. V. S., San Fernando, Trinidad.*

I TAKE GREAT PLEASURE IN READING THE REVIEW, for its pages are full of valuable material which no veterinarian can afford to miss. I wish you every success to reward you for your noble work.—*James M. O'Reilly, M. D. C., Merrill, Wis.*

DR. RALPH C. JENKS, of Sing Sing, N. Y., who has for the past two years been assistant to Dr. Roscoe R. Bell, of Brooklyn, has located for practice at his home, and has been succeeded by Dr. Walter Lincoln Bell, McGill, '97, as assistant to Dr. B.

IF NEW YORK STATE should do as well next September as Nebraska did last fall in the matter of attendance upon the A. V. M. A. (98 per cent. of her graduates) there will be a mighty "Jubilee" in Gotham. And then the populous seaboard States are yet to be reckoned upon.

DR. WM. HERBERT LOWE, Treasurer of the American Veterinary Medical Association, has been highly honored at his home in Paterson, N. J. After serving under the city government for ten years, he is unanimously reelected to the office of City Veterinarian of Paterson, N. J. Every member of the Board of Aldermen (both Republicans and Democrats) voted for Dr. Lowe's reelection.

THE MINNESOTA LEGISLATURE, recently adjourned, has increased the annual appropriation for dealing with infectious diseases of animals by \$2500. The last legislature gave an increase of \$3000. This makes a very helpful sort of a compliment for the veterinary department of the Minnesota State Board of Health under Dr. Reynolds.

IS CRYPTORCHIDY HEREDITARY?—Dr. W. L. Williams, of Ithaca, N. Y., writes: "Among 'Items' in May REVIEW I

note your remark regarding Dr. Butterfield's belief in the heredity of cryptorchidy. I enclose a clipping from *Country Gentleman*, contributed by me, in which you will note I support his contention with some data."

MR. CARL W. GAY, of the senior class of the New York State Veterinary College, has been elected to a Fellowship in Veterinary Science for next year. This fellowship carries a remuneration of \$400, the student to take a major and minor subject, and is subject to a demand on his time for teaching to the amount of four university hours per week. He will also aid Prof. Williams in clinical instruction. This college has also been granted a Scholarship in Veterinary Science which will be open to freshmen in competitive examination.

NON NOBIS SOLUM.—We know some veterinarians of large experience and keen observation who delight in detailing absorbingly interesting cases in private conversation, and we never enjoy one of those pleasant hours that we do not relinquish it with regret that they stoically refuse to reduce some of such valuable experience to REVIEW manuscript, that our readers might reap interest and profit therefrom. George H. Berns, of Brooklyn, is a good example of this class, and there are hundreds of others all over this country. They simply do not appreciate how grateful the profession at large would be for it, and do not heed the legend which heads the REVIEW department of "Reports of Cases."

AN ADDITION TO THE OPERATING TABLE.—The inventive brain of Prof. Williams, of the New York State Veterinary College, has evolved a device which is best described in his own words, as follows: "I have recently devised an operating ambulance for transferring anæsthetized horses and cattle from the operating table to the stall or, in good weather, to the lawn. While heretofore we have been obliged to wait for 30 minutes to two or even more hours before a horse could be taken from the table, it is now but the work of a few minutes to get the patient comfortably located in a box stall or on the green lawn, and under these conditions the animal recovers more rapidly and regains his feet more safely."

ANIMAL HOMES IN INDIA.—A Calcutta newspaper just received, contains an interesting account of the workhouse or asylum for aged and infirm beasts and birds, which was established some thirteen years ago by a society of influential Hindus. It is near the Sodepur Station, about ten miles from Calcutta, and is under the control of a manager, with a staff of

eighty servants and an experienced veterinary surgeon. In this place at present there are 979 animal paupers—129 bulls, 307 cows, 171 calves, 72 horses, 13 water buffaloes, 69 sheep, 15 goats, 141 pigeons, 44 cocks and hens, 4 cats, 3 monkeys and 5 dogs. The asylum is described as being systematically and mercifully managed. The cows have especially a good time of it, inasmuch as, on festal occasions, natives go from far and near to decorate and worship them. The mysterious lower world of animal life is regarded in India with more reverence and kindness than among Christian people. The one great fact of abstinence from flesh food produces an extraordinary effect among Hindu communities. A newly arrived European walking in Poona or Baroda or Nassick, or any such Brahmanic capital, would mark with wonder how the lower creatures have understood and acted upon this tacit compact of peace. In the densest portions of the towns the monkeys sit and chatter on the roof ridges, the striped squirrels race up and down the shop poles, the green parrots fly screaming about the streets, the doves perch and coo and nest everywhere, the flying foxes hang over the most frequented wells and tanks, the mongoose scurries in and out of the garden gates, the kites and crows frequent the market places, jungle doves and birds of all sorts forage boldly for food, and at night even the jackals steal impudently down into the suburbs.

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In making up my REVIEWS to be bound I am short of the following numbers: Vol. XIII, July, September, October (1889). As I cannot obtain these from the publishers, I will give the regular rates or a slight advance, or will exchange any of the following which are duplicated in my file: Vol. XIV, October (1890); Vol. XIX, February, March, and April (1896). Address ROBERT W. ELLIS, D. V. S., 509 W. 152d Street, New York City.

AMERICAN VETERINARY REVIEW.

JULY, 1899.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

THE AMERICAN VETERINARY "JUBILEE."

As the time draws near for the assembling of the veterinary hosts in New York City the evidences multiply that the final year of the greatest century in the history of the world will witness a gathering of veterinarians upon American soil such as was never known in the comparatively short history of veterinary science in this country. More than half of this notable century had passed before the birth of this science; indeed its nativity may be calculated from the inaugural meeting of the United States Veterinary Medical Association in 1863, for prior to that date there was but a handful of qualified men scattered throughout the country, and the profession was without organization. That thirty-six years could bring it from its helpless infancy to its large proportions of to-day, seems but another illustration of that wonderful factor of American character—scientific progressiveness. It is meet, therefore, that this auspicious year should record in its annals that the veterinary profession was in the advance guard of the learned sciences, its ranks thick with bright men willing and anxious to do any labor or undergo any sacrifices that they might add to its glory and its treasures of truths.

The REVIEW is particularly jealous of the successful issue of the forthcoming meeting, not only for the reasons recited, but because this last meeting of the twentieth century occurs in the same city as the initial one of the National Association, and

hence the birthplace of the profession should be the location also of its "Jubilee." In a year of veterinary prosperity, in the heart of the most populous veterinary district of the country, surrounded by states with vigorous associations and with one or more veterinarians on every state and municipal health board, as well as those under the patronage of the Bureau of Animal Industry, to say nothing of the army of private practitioners, it is certainly not an exaggeration of imagination to anticipate a climax of attendance and interest in the approaching meeting. And all of them attracted by this great sextuple event :

- The American Veterinary Medical Association ;
- The New York State Veterinary Medical Society ;
- The New York County Veterinary Medical Association ;
- The Association of Veterinary Faculties of North America ;
- The Experiment Station Veterinary Medical Association ;
- The Alumni Association of the American Veterinary College (Silver Anniversary).

There can scarcely be a veterinarian in the realm who is not interested in some one or all of these gatherings, and the REVIEW calls upon them to begin now to make preparations to lay aside all other business for the second week in September, 1899, and devote this uninterruptedly to the great "Veterinary Jubilee."

Elsewhere will be found the programme as far as completed, and we print it thus in full in the hope that its tempting contents will induce all those who can possibly leave their homes and businesses to come to Gotham and join their brethren in the great feast of reason and round of pleasure.

THE TUBERCULOSIS AWAKENING.

Although those whose special facilities for study and conclusion entitles them to be classed as authorities positively and persistently proclaim that the milk and flesh of cattle are the most prolific sources of infection to the human subject of the scourge consumption, the importance of the subject is ever and anon being discounted by certain medical men and the press

under the cry of "scare." But the facts are so well established that new evidences of the truth of the statement are constantly coming to view, and it will not down. No amount of gallery talk about veterinarians looking for jobs will discredit the fact that delicate constitutions are taking into their vital systems daily the tubercle bacillus, and that it finding a congenial habitat there will develop into consumption, which saps the life of the host and makes of him a new focus of infection.

The REVIEW discredits as thoroughly as the lay press the proposition to inaugurate a "scare," but it as thoroughly stands for an intelligent understanding of the situation, without covering up the real facts by sarcastic ridicule and political buncomb. We welcome, therefore, the discussion of the subject, as excited by the action of the Governor of Illinois, who has yielded to public sentiment in declaring by statute enactment that all cattle coming into that State shall first have been submitted to the infallible tuberculin test. His action has drawn earnest attention to the subject, the lay press has gone deeply into the matter, and whatever the outcome of the measures taken, the public will be educated along lines that can but eventually redound to the credit of the veterinary profession, since the situation is fermented by unassailable facts, substantiated by incontrovertible proofs.

We adjure our friends of the profession in this crisis to stick steadily to scientific facts, avoiding the emotional phase of the situation, and when the subject again assumes its normal aspect, the lines will have been tightened on the monster which they have been so long combatting.

In this connection, we refer our readers to a long article elsewhere on the methods of control of the disease in the various States of the Union.

THE EDITORS solicit contributions to the department of "Reports of Cases," believing implicitly that through such a medium a great deal of practical knowledge can be imparted to their readers. We have made inquiry of a number of subscrib-

ers, and without exception they testify to the value of such material and assert that they never fail to read every line of it with deep interest. We make a note of the fact that not one who thus commends it ever contributed a line towards its enhancement, yet they were men of large experience, coming in contact daily with cases which would make the department fairly sparkle with added brightness. Each subscriber should feel it his duty to make this the forum of practical discussion.

THE method of administering wood charcoal in acute gastric and duodenal indigestion by first depriving it of its residual gas by heat, as advocated by Dr. Goubeaud before the New York County V. M. Association, is proving very efficient in practice in the hands of a number of veterinarians.

THE COLORADO ANTI-DOCKING LAW.—The following is the text of the bill recently passed by the Colorado Legislature :

SECTION 1. It shall be unlawful for any person or persons to dock the tail of any horse within the State of Colorado, or to procure the same to be docked, or to import or bring into this State any docked horse, or horses, or to drive, work, use, race, or deal in any unregistered docked horse, or horses, within the State of Colorado.

SEC. 2. Within 90 days after the passage of this act, every owner or user of any docked horse within the State of Colorado shall register his or her docked horse or horses, by filing in the office of the county clerk and recorder of the county in which such docked horse, or horses, may then be kept, a certificate, which certificate shall contain the name or names of the owner, together with his or her post office address, a full description of the color, age, size and the use made of such docked horse, or horses ; which certificate shall be signed by the owner or his or her agent. The county clerk shall number such certificates consecutively and record the same in a book or register to be kept for that purpose only, and shall receive as a fee for the recording of such certificate the sum of fifty cents.

SEC. 3. The driving, working, keeping, racing, or using of any unregistered docked horse or horses after ninety days after the passage of this act, shall be deemed *prima facie* evidence of the fact that the party driving, working, keeping, racing or using such unregistered docked horse or horses, docked the tail of such horse or horses.

SEC. 4. Any person or persons violating any of the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction shall be punished by a fine in a sum not less than one hundred dollars nor more than five hundred dollars, and by imprisonment in county jail not less than thirty days nor more than ninety days for each offence, or by both such fine and imprisonment.

ORIGINAL ARTICLES.

CONTRIBUTION TO THE STUDY OF PNEUMONIA IN THE HORSE.—LIGNIERE'S OBSERVATIONS.

TRANSLATED BY ADOLPH EICHORN, ASSISTANT HOUSE SURGEON, HOSPITAL DEPARTMENT OF AMERICAN VETERINARY COLLEGE.

Read before the June Meeting of the Veterinary Medical Association of New York County.

Lignière maintained for a long time that the bacteria of Schutz and the streptococcus of strangles were identical. So that clinically it is impossible to identify infectious pneumonia from strangles. The first often affects horses which have been cured from strangles, but pneumonia in most instances secures immunity to strangles. In other cases Lignière noticed the absence of the bacteria of Schutz in complete hepatised lungs in horses which had died from a typical epizootic pneumonia. This caused a suspicion of the existence of an unknown microbe, giving rise to different pneumonias, where the bacteria of Schutz is absent. After many difficult trials to isolate them, Lignière found the microbe of influenza. He found it in pleuritis, pleuro-pneumonia, infectious pneumonia, influenza, glandular pneumonia, broncho-pneumonia, etc. This may explain the fact that there are cases of pneumonia which for a short while show all the symptoms of influenza, without complications.

It was necessary, therefore, to produce by experiment the typical symptoms of pneumonia. Intrapulmonic or thoracic injections would not give any results, as in this way numerous other microbes could produce pleuro-pneumonia. The task, therefore, is not so easy, as the course of different pneumonias is not the same in every case. He soon succeeded in producing a nicely hepatised lung, in the rabbit, by an injection in the muscles of the thigh. A subcutaneous injection in the horse produces a characteristic pleurisy; for the appearance of pneumonia other circumstances are necessary, which shall be studied

later. Example: June 5, 1897, an old draught horse received a subcutaneous injection of $\frac{1}{4}$ c.c. of the culture; June 6, large œdematous swelling at the place of injection; temperature 39.7 C. Mucous membrane normal. On evening of June 8 symptoms of pleurisy; death occurred on June 9 at 2 P. M. The immediate post-mortem showed the small intestines in some places hyperæmic; the other part of the intestines normal or slightly reddened; the thoracic cavity contained 5 to 6 litres of cloudy fluid; pleura highly inflamed, lungs congested, otherwise nothing of note. The subcutaneous injection of the culture was performed with all possible care. The exudate in the thoracic cavity contained, besides numerous examples of the injected bacilli, many streptococci of strangles. This proves how easily the streptococcus of strangles grows and multiplies in a body weakened by kokko bacilli. This revelation also gives the key to the etiology.

Infectious pneumonia is the result of the bacilli of influenza; the localization in the lungs is especially produced by a co-operation of the streptococci of strangles. The former prepares the field, and then the latter, which is spread all over, finds an easy opportunity to attack the subject. As soon as the streptococcus begins its activity the typical kokko bacilli clears the field. The following may confirm this: By an inoculation of weak kokko bacilli, together with streptococci, in the peritoneum of the guinea-pig, the latter is only found at the post-mortem. By making a culture in beef-tea of the same amount of Lignière's kokko bacilli and pyogenic or strangular streptococci, it becomes after the lapse of 24 hours a rich streptococci culture. By incubating the kokko bacilli into a four- or five-day-old culture, containing pyogenic or strangular streptococci, which has been passed through a Chamberland filter, the beef-tea remains clear and the kokko bacilli do not multiply. Contrary to this the streptococci grow and multiply very rapidly, in a filtered culture of kokko bacilli. Lignière found the kokko bacilli in every kind of pneumonia, all of which proves that a single appearance of a case of pneumonia does not exclude its

contagious character. A prophylactic injection of a weakened culture of Lignière's kokko bacilli would protect the animals not only from influenza, but also from the different forms of pneumonia. The sick animals would have to receive an anti-typhoid and at the same time an efficacious serum against the streptococci.

The appearance of single cases of pneumonia is due to kokko bacilli, but whether there are other causes of pneumonia is questionable but not excluded. In the meanwhile Lignière had the opportunity to observe influenza in Buenos Ayres, Argentine, and in the Pampas. His inoculation experiments up to that time had labored under the disadvantage of a lack of young horses for his purposes, but here there were enough at his disposal and he succeeded in producing all the natural types of typhoid fever of the horse. The gastro-intestinal form through an intravenous inoculation of $\frac{1}{2}$ c.c. culture, succeeded in producing pleurisy, pericarditis, nervous affections, ophthalmia, icterus and pneumonia. From natural diseases he could make a subcutaneous injection of several c.c. of blood of the sick or dead horse with impunity. One must have a clear idea, as Lignière says, that the Schutz's ovoid bacteria is a streptococcus, which had been seen in 1874 by Friedberger, then by Dieckerhoff, Mendelsohn, Perroncito, Brazzola and Lustig; better observed by Delamotte, Chantemesse, Violet and Galtier. The last authorities have described the Schutz microbe in its true aspect, without, however, identifying it with that of the German observer and call the Schutz's infectious pneumonia "*pneumo-enterite des fourrages*."

Every form of pneumonia is of typhoid origin—or, better stated, they are "pasteurellas." But how shall we explain the clinical differences which have been justly observed and differentiated by the practitioner?

The kokko bacillus, as all the pasteurellas, acts on the system in different ways—at times with great virulence; it penetrates all the tissues; in other cases the infection remains local, mostly in the intestinal tract, acting with its toxine, which gives an

opportunity to the development of other microbes. In the last case the bacilli may remain in the organism for a long time or may soon disappear. The secondary microbes can make use of the weakened organism, multiplying rapidly and producing death. This is often the course in pneumonia; the clinical picture depends on the changing relations of the kokko bacilli and streptococci. If the kokko bacillus affects the system with great virulence, so that it impresses its mark on the disease, in spite of the addition of streptococci, we have to deal with a case of typhoid pneumonia (influenza complicated with pneumonia). The specific bacilli can have a passing and less intensive part to play, which allows the streptococci to produce its special lesions and symptoms. Consequently the observer is correct in making the symptomatological discriminations. All pneumonias are due to microbes. There are for pneumonia, just the same as for other diseases, predisposing causes, as overwork, cold, heat, etc., but when pneumonia makes its appearance this is then due to the microbes.

The following example should prove what has already been said: In a big stable several horses show slight swellings of the extremities, impaired appetite; they are dull, conjunctiva swollen, temperature 39 C. Shortly afterward, three of them become affected with pneumonia. The symptoms are of typical infectious pneumonia, and not of influenza, the affected animals being four years of age, one of which died after three days. Post-mortem showed dark blood, liver, spleen, kidneys tender, and strong hepatization of the right lung. The culture of the lung contains only the streptococci of Schutz; the one of the kidneys streptococci and coli bacilli. Kokko bacilli were only detected by the inoculation in guinea-pigs, of which one died from pneumonia eight days after the inoculation. Some time afterward another horse became affected, showing the following symptoms: Temperature 41 C., dullness, eyes half closed, lachrymation, mucous membrane dark, small pulse and no localization in the lungs, extremities slightly swollen. Convalescence began five to six days after the appearance of

the disease. These are every-day observations, which may be made by any practitioner.

According to bacteriology, pneumonia can be divided into three kinds :

(1) In which the kokko bacilli work alone and are easily found.

(2) The effect of the streptococci is already significant but not yet general. It is difficult to find the specific microbe.

(3) The streptococci has penetrated the blood and tissues. It is impossible to find the specific microbe.

Diseases produced by experimental inoculations of kokko bacilli have often terminated in streptococci pneumonia, which is done by placing a small collodion sack containing kokko bacilli into the abdomen of a rabbit ; the result is a streptococci pneumonia. This experiment in horses will be performed in a short while.

After all this, one may be disposed to remark that pneumonia is typhoid fever of the horse, with localization in the organs of the thoracic cavity, but this would not be correct, as all the characteristics of typhoid fever are not present.

One should talk of it as pasteurella. To this new apprehension one may oppose that typhus of the horse is far more infectious than the pneumonias. Really all the pneumonias are contagious, and if this is less than in the typhoid form it is due to the higher virulency of the microbes in the latter. Often one may notice the enzootic form of pneumonia when in a stable, most of the animals becoming affected. It may be that the streptococci obtain higher pathogenic properties by passing through different passages of the animal's body.

The specific kokko bacilli produce only a relative and not an absolute immunity. Horses may become affected several times from pneumonia. The fact that it is possible to produce immunity through weakened cultures is sure. Lignière did not have the opportunity yet to verify the practical inoculations as he succeeded with it in the pasteurella of cattle.

Most of the experiments were done by the veterinarian

Valtee, who inoculated 5007 horses of the Cab Company, which had been bought from October 4, 1897, until May 12, 1898. All odd numbers received two inoculations, the evens not being inoculated. Five died on account of the culture being too strong. Until October 31, 1898, of the horses which were very liable to become affected by all the different diseases, 254 died of lung affections, among them 96 inoculated and 158 not inoculated. Lignière's absence and the difficulty of the case, may explain the little success. Still, there are effective results from the inoculated ones, which are in the relation of 3:2, and we may hope that Lignière, with his immense diligence, will correct the committed faults, and, above all, establish the correct doses of the culture for preventive inoculations.

CORNSTALK DISEASES.

BY A. BOSTROM, D. V. S., MINDEN, NEB.

Read before the Nebraska Veterinary Medical Association, February 21, 1899.

I call your attention to a few facts concerning that inexhaustible subject—"Cornstalk disease."

The cornstalk is looked upon with suspicion, as an agent which sometimes seems to be incompatible with animal life; yet thousands of horses and cattle are turned out to feed upon it every year, and if anything happens to interfere with the natural laws which govern the health and life of the animals, the cornstalk is held responsible for it; and the question is, "What is the matter with the stalks?"

Before trying to answer this question, let us consider the corn-plant in detail. I believe that the corn-plant is subject to the natural laws which govern the vegetable kingdom. We plant the seed, it germinates and grows; we cultivate it, and it gets ripe; we take care of the seeds, and the stalk is left in the field to take care of itself. It is subject to diseases like other members of the vegetable kingdom; both animal and vegetable parasites may affect its growth, of which the vegetable parasites are the most important group, including such pests as: *Smut*,

caused by the fungus *ustilago carbo* and the *ustilago maydis*; *rust*, of which the most important is *puccinia maydis*, and *ergot*, a fungoid disease not only affecting the rye plant but many other species of gramina, such as corn, wheat, etc.

About the time of maturity, the most tender leaves of the plant begin to fall off upon the ground and there they become covered with small fungi, of the genus *penicellium*, *aspergillus*, *mucor*, *ascophora*, etc.

Small sideshoots, developing only rudimentary ears, die early, and in going through the process of decay contain innumerable numbers of the above named fungi. Now, this is the actual condition of the corn-plant as near as I can describe it.

Burrill, Billings, and others say that they have discovered a germ that is the cause of the cornstalk disease. Others say that the cornstalk contains so much saltpetre, when grown in certain places, that the animals eating it die of saltpetre poisoning.

Now, after considering the various conditions of the corn-plant, let us turn our attention to some of the other plants for comparison.

Clover is subject to the attacks of several fungi, of which the most important is the *peronospora trifolium*, which exerts its irritating action directly upon the gastro-intestinal mucous membrane, or which produces the formation of a toxic substance which acts particularly upon the liver and the brain, producing what is known as clover disease.

Straw of wheat and oats when damp and going through a mouldy change are affected by various fungi, such as: *Tilletia*, *caries*, *puccinia*, *graminis*, etc., causing derangement of the intestinal and urinary organs, followed by paralysis and death. We have already seen that the cornstalks are sometimes affected by various fungi, and I am inclined to believe that if the fungi on clover produce clover disease, the fungi on cornstalks are the cause of the so-called cornstalk disease. I have seen both horses and cattle die from eating straw covered with fungi. I have seen hogs die from the effect of mouldy flour. I have had considerable experience with the so-called cerebritis or encephalitis,

described in our veterinary publications as being caused by wormy and mouldy corn, and I believe that all these conditions, the cornstalk disease included, are cases of fungus poisoning. Cornstalks may be the cause of other conditions which frequently result in death. Sometimes cornstalks are cut up and fed to cattle and horses in July and August, when grass in the pasture is insufficient, and, when fed fresh and in limited amounts, I have never seen or heard of any bad results therefrom; but when the stalks have been cut at this time of the year and allowed to remain in the field for a week or ten days, long enough to allow the development of an active process of fermentation, and then fed, I have seen the most serious disease with death following in one-half to two hours of *acute tympanites or metorism*. If seen in time the animal can be relieved by tapping, when after the escape of the gas the animal gets well in a very short time. I do not believe that any other germ except the bacteria of fermentation could be the cause of the production of this gas, and the fact that the tapping and the escape of the gas left the animal well in such a short time is proof enough that this is not a pathogenic bacterial disease. Acute indigestion and gastritis, with or without engorgement, with metastasis to the brain through reflex nervous action, is a frequent occurrence in the stalk fields, and I believe that neither the Burrill-Billings bacillus nor saltpetre have anything to do with it.

Both horses and cattle are liable to overload themselves if allowed to have free access to the stalkfields, especially when first turned into the field; cases of engorgement of this kind are often followed by paralysis and death, especially in cows. Now, regarding saltpetre poisoning, the question is: Is it possible that the corn-plant *can* absorb such an abnormal amount of saltpetre, even if the ground upon which it grows should happen to be very rich in saltpetre? The statistics of chemical analysis of the composition of various plants are regarded as facts by which we can determine the amount of the various kinds of food, and in what proportion they should be supplied, in order to get a certain result.

If it is a fact that the cornstalk, or any other plant, growing under natural conditions, is of such nature that it is a good wholesome plant when grown in a certain place, but a poisonous one if grown in another, simply because that place happened to contain too much of one of the natural ingredients of that plant; then the figures of chemical analysis are very unreliable.

Now, we have seen that the cornstalk may be the cause of *acute tympanites*, *indigestion*, *gastritis* and *fungus poisoning*, simply because it is often eaten in excessive quantity or in bad quality. Straw, hay, grain and flour, fed in the same condition, will produce the same result. But, it is a fact that, while we generally take care of and save all other plants used for animal food, the cornstalk is left in the field to take care of itself, under the influence of all kinds of winds and weather. The dry stalks which stand there in defiance of all the elements of nature have become a mass of woody fibres good for nothing except to cause indigestion.

The most tender parts, such as leaves and sideshoots, fall upon the ground, there to go through the process of decay, the ultimate process of reduction to its original state—dust. These rotten parts are generally eaten by the young stock, going through the active process of dentition, in preference to the other parts, which require active mastication, and the young animal which has eaten almost nothing but these decaying mouldy parts dies of *fungus poisoning*; the older stock more frequently die from *indigestion*.

Early in the fall I think there is some nutriment in the stalks, and there is generally some corn left in the field, and I believe that if cattle and horses are allowed to eat a limited amount at a time, they will do well on it, provided that the organs of digestion are in good order when this sudden change of diet takes place. Mild cases of fungus poisoning we frequently notice as toxic polyuria, caused by mouldy feed. As an accessory cause in the development of the diseases now spoken of, I will particularly mention *cold*. Cold acts as a debilitant if long con-

tinued or severe ; it weakens the circulation, especially that of the surface of the body, causes internal congestion, and directly lowers all the vital energies.

In conclusion, I will call your attention to the fact that of all the disease-producing causes, there is no single factor which has so much influence as the quality of the food, and I believe that the cornstalk disease, as well as many other diseases, is the result of the violation or nonapplication of the rules of hygiene.

All plants intended for animal food should be cut when they are ripe, dried and saved properly ; water should be pure, plenty of it, and accessible at all times, salt at least twice a week ; good shelter and plenty of bedding. When this is observed, disease will be reduced to a minimum.

TRISMUS.

BY JOSEPH PLASKETT, D. V. S., NASHVILLE, TENN.

Read before the Tennessee Veterinary Medical Association.

I feel that I am making an error at the outset of this paper in choosing for the caption of it the term trismus. The question has been asked "What's in a name?" and the assertion made that "a rose by any other name would smell as sweet," and we would be led to believe from this that names as a rule are immaterial, and have not much significance attached to them. I have chosen the term trismus for it, because the pathological process which we term trismus is one of the characteristic indications of this disease. While it is invariably present, still it must be remembered that it is only one of many symptoms, and that it is always associated with others, in the trouble of which I speak. A careful search through all the veterinary literature at my command has failed to reveal the slightest mention of such a disease as the one I am about to attempt a description of. Consequently the effort I present to you is drawn entirely from a rather imperfect memory of such cases as I have seen, and for this reason I trust that its errors

and imperfections will meet with the consideration at your hands which should always be extended to one in such a position. Before entering on a description of this disease, I wish very emphatically to impress on my hearers the point that I have not written on this subject with the idea that I am in any way specially fitted or competent to do so. I have not carried out any original investigations, neither have I made any special study of the trouble, and my only object in presenting it is to learn the views of the other members as to the pathology, treatment, etc., and see if they coincide with my own.

In regard to the distribution of this disease I believe it to be indigenous to the Southern States, as I have never witnessed it in any other portion of the country. I was connected with the hospital of the Veterinary Department of McGill University for four years, and never saw a case of it while there, and were it at all common in the Northern or Eastern States, the progressive veterinarians at those sections would have shed more light on the subject than seems to illuminate it at present.

It seems to be much more prevalent during the summer months and is seen most frequently in extremely hot weather. However, I have seen one or two cases during cold weather, but these do not seem to be of such an aggravated form and are more amenable to treatment. In attempting to present a theory as to the pathology of, or as to the cause for this trouble, I am at a loss to know how to begin and can only surmise on the subject and give you my theories for what they are worth. I have thought it probable that it was connected in some indirect way with some derangement of the digestive organs. That the central nervous system is responsible for the direct manifestation of the trouble I do not think there can be any doubt, but the confusing part is as to how these organs become affected. In the majority of the cases I have seen there has been a history of indigestion just previous to the attack and I had thought that the perverted functions of these organs had in some manner generated a poisonous principle, be it toxine, ptomaine, or digestive ferment, and that the resorption of this into the system

had affected the nerve centres in the manner I am about to describe. But other cases I have seen would seem to indicate that we must look to something else as the causative factor. I have frequently seen it follow as a result of over-exertion, as, for instance, a fatiguing drive on a hot day, especially if the animal has been laid up for a few days and is soft and unfit for such labors. Again, I have seen two or three typical cases in which I could ascribe the cause to nothing else but fretting and nervousness. Two, I remember, were brought about by separating mares from their offspring and the animals being of a highly nervous temperament (both thoroughbred), the worrying and excitement in a few hours brought on a typical case of this disease. Another case developed during a difficult and protracted obstetrical case, which required two or three hours time and considerable traction to relieve, and during this time the mare developed trismus, which rapidly went on to a fatal termination. And again I have seen cases in which I was utterly at sea in finding any cause, as the animals were either at pasture or would develop the disease while pursuing their daily work, and in both cases surrounded by apparently the same conditions as they had been for several weeks.

I will now attempt to describe the symptoms as they have presented themselves to me and as correctly as my memory will permit. In some respects this disease quite closely resembles tetanus and might be considered as a pseudo form of that disease. But there are several distinctive differences, and though it is nearly always called "lockjaw" by the laity, it is never mistaken for true tetanus by a qualified veterinarian. I have never seen a case until after the disease had made some progress, but according to reports the first symptom noticed is a general uneasiness, which manifests itself by restlessness, and is quickly followed by a profuse perspiration. Almost from the first trismus is present to such a pronounced degree that severe muscular efforts are unable to prize the jaws apart. Sometimes a careless owner's first intimation that anything is wrong is that after a hard drive on a hot day he is unable to get the bit out of

the horse's mouth when he drives in the stable. That peculiar clonic spasm of the diaphragm commonly known as "thumps" is frequently present to a marked degree, but I have known numerous cases in which it was entirely absent. The pulse is accelerated, and the temperature elevated sometimes as much as seven or eight degrees.

Unless the merciful intervention of the *vis medicatrix naturæ*, or the efforts of the attending veterinarian have produced some amelioration of the symptoms described, these are quickly followed by more serious ones. The uneasiness and excitement increases, and manifests itself by a desire to keep constantly on the move in the limits of the area in which the animal is confined. It never assumes a recumbent posture, keeping stubbornly on its feet, and only goes down when too exhausted to stand any longer, and as a rule never rises again. In addition to the contraction of the masseter and other muscles of mastication, we now notice that nearly all the muscles of the body are in a state of tonic spasm. This is usually more particularly noticeable in those of the hind extremities, but its general effect is best shown in the gait of the animal. It moves around almost as if his legs had been replaced by stilts, and it might be supposed that all the joints in his limbs were ankylosed. The result of this is a peculiar stumbling, jerking gait, and I have seen it to such a pronounced degree that were it not for the loss of flexion in the hocks, the jerking of the hind limbs might be mistaken for an exaggerated case of stringhalt. The perspiration streams from every pore, and the breathing, especially those cases in which the diaphragm is involved, becomes quick and laborious. There seems to be an uncontrollable desire for the animal to keep in motion, and even if he be haltered up the limbs seem automatically to keep up the incoordinated movements of which I have spoken. The sudation and dyspnœa increase, and the animal, with distended nostrils and streaming with perspiration, stands a picture of agony and distress until death relieves him of his suffering.

In those cases in which recovery takes place the restlessness

subsides almost as quickly as it appeared, the jaws relax, and in the course of two or three hours the animal is eating and is apparently as well as ever.

In regard to the treatment of this malady I might say that my efforts in that direction have not been attended with any startling degree of success. A line of treatment which I have considered efficacious in one case, and which has been followed by the recovery of the patient, has proved itself of no value in ameliorating the symptoms of the next. Whether the treatment produced the result in the first case, or whether recovery took place in spite of the treatment, is still a disputed point in my mind. On account of the extreme trismus always present oral medication cannot be resorted to, and we have to rely on the subcutaneous, intravenous, or rectal methods for the administration of our drugs. If I reach the patient in the early stages of the disease, I have usually resorted to venesection and the abstraction of six or eight quarts of blood from the jugular, as the first step in the treatment. Afterwards the hypodermic administration of sulphate of morphia, five grains, repeated if necessary after one or two hours, has seemed to give better results in my hands than anything else. To quiet the extreme restlessness I have also used fl. ext. cannabis ind. hypodermically, with sometimes fair results and sometimes no results at all. Eserine and pilocarpine, to relax the muscular spasms, have also had a trial at my hands, as has also the intravenous injection of barium chloride. But none of these have produced the results hoped for, and I have come to the conclusion that in some cases the physiological effect of any drug or all drugs is entirely wanting, whilst in others its administration is followed by the happiest results. I have thought for some time that the next case I had I would try the effect of producing general anæsthesia, and see if it would produce any permanent effect on the contracted muscles. However, Dr. W. C. Rayen, of this city, tells me he once tried it with no beneficial results. The best results I have obtained have been from phlebotomy, followed by the hypodermic administration of morphia, but my

best results have not been eminently satisfactory either to myself or to the owner of the patient.

The duration of the trouble is from two or three hours to fifteen or twenty, though as a rule if the animal shows no sign of improvement after the first few hours have elapsed, I always consider the prognosis a grave one, especially if the owner has trusted the patient's future destiny to my tender mercies. I usually give an unfavorable prognosis if the case is an aggravated one and no improvement has followed the usual remedies, or if, as is often the case, the animal gets steadily worse in spite of everything that has been done.

I have held one or two post-mortems, but failed to find anything more abnormal than a slight congestion of the intestines and also of the membranes of the brain; though I must admit the autopsies were not as carefully performed as they might have been.

In conclusion, I hope that the discussion this paper will excite will throw light on this rather peculiar disease, and will be the means of disseminating some much-needed knowledge among my brother practitioners and myself. I know that all of the members present must have seen similar cases, and if they will give their experience with it, unfavorable and disastrous even though it be, as freely and unreservedly as I have, I trust that all of us will feel ourselves benefited by having had this subject brought before us for our consideration.

TUBERCULOSIS.*

BY L. A. MERILLAT, V. S., CHICAGO, ILL.,

Chairman of the Committee on Tuberculosis of the Chicago Veterinary Society.

The limited time assigned me does not admit of any lengthy discussion of the subject of tuberculosis of domestic animals. It will be simply my aim as Chairman of the Tuberculosis Committee of the Chicago Veterinary Society to mention, in a few

* An address delivered at the organization of the Illinois Society for the Prevention of Tuberculosis.

words, the function of the veterinarian as an active member of such a society as is being born here to-night: a society that undertakes the herculean task of exterminating tuberculosis from the human family.

When it was demonstrated beyond doubt that human and bovine tuberculosis are identical the veterinarian at once became a more potent factor as a public sanitarian, and especially since tuberculosis was added to the other numerous diseases that are directly transmitted from the lower animals to man the veterinary profession has never for one moment relaxed its efforts in the campaign of extermination. We have been brought face to face with the important duty of striking directly at the cause or at least the purveyor of diseases, not only in the case of tuberculosis, but also many other diseases and conditions of milk- and meat-producing animals.

And now that a movement is on foot in Chicago to wage war against tuberculosis we, the members of the veterinary profession, are here, prepared to shoulder that share of the burden which belongs to us, namely, the control of the sale of tuberculous products—milk and meat—with the ultimate aim of exterminating tuberculosis from the animals which produce them.

From the very onset this society will doubtless endeavor to exhaust every means and utilize every known weapon at its command to accomplish its purpose, and in doing so it is to be hoped that the matter of regulating one of the chief sources of tuberculous infection will receive early consideration. In this I refer to the dairies and the milk supply of our city. Tuberculous meat, unless eaten raw or too rare, is not such a dangerous product, but milk and butter being consumed in a raw state are now recognized as among the chief conductors of tuberculosis from the domestic animal to man by the best authorities of this country and Europe, and as it has already been demonstrated that tuberculosis is very prevalent among the dairies supplying the city with milk, it is our duty to recommend steps for the control of the sale of their infected products.

Unlike other large cities and even smaller ones Chicago has never agitated the matter and nothing has ever been done to better the condition of our milk supply. In this connection as members of this society the duties of the veterinarian are plain. It will fall to our lot to present, for your consideration and discussion, sensible and practical methods of dairy inspection; methods which will result in the most good and will work the least inconvenience and loss both to the consumers and producers of milk, and at the same time be the least expensive to the public.

The task of purifying the enormous milk supply of Chicago would, on casual notice, seem an equally enormous and expensive undertaking, but that this is not the case is exemplified in the experience of other cities where the sale of tuberculous milk is actually controlled at very little public expense. Minneapolis is probably the pioneer in this work and Chicago could do no better than profit by their experience. This I mention to show the feasibility of cutting off one channel by which the human body becomes infected with tuberculosis.

Now a few words on the extermination of tuberculosis from the domestic animals, which is a more difficult proposition than regulating the milk supply. To attain this end is quite as difficult as in the case of human tuberculosis with the possible exception of the ground the veterinarian gains through the slaughter of infected subjects, which of course the human sanitarian can never enforce. It is, however, safe to predict that human tuberculosis will exist as long as bovine tuberculosis exists and *vice versa*, and that one can never be exterminated without the other. Laws must be enacted, appropriations must be obtained, sanitary and other measures branching in many directions must be adopted, the public must be educated as to their needs and their danger, and finally many points of vital importance must yet be decided by the researching contingent of the medical and veterinary professions.

The slaughter of all diseased animals, the disinfection of their habitats, together with the establishment of strict quaran-

tine against diseased animals, would in due time accomplish the desired results. But the enforcement of such radical measures, with the opposition they would meet, is nothing short of an impossibility. It will be necessary to inaugurate a long, tedious campaign of education with literature such as this society intends to distribute. The owners of tuberculous herds must be shown the fallacy of harboring diseased animals. They must be taught that the adoption of certain sanitary measures, easily within their reach, will eventually result in the elimination of tuberculosis as well as other diseases from their farms and dairies. The process will be slow but sure and at least profitable to them.

In this campaign the veterinarian meets with the same barrier as the medical profession in that the owners of live stock do not recognize their danger. Acute contagious diseases which abort or kill rapidly arouses them, but slow, chronic and occult conditions, such as tuberculosis, do not awaken the least fear.

The work will therefore be complicated and tedious, and the Chicago Veterinary Society directs me to offer this new association its earnest and energetic collaboration.

In conclusion, I wish to present the following summary of the points we are prepared to demonstrate, and upon which we wish to act :—

1. That the tuberculin test for bovine tuberculosis is sufficiently reliable to be practical.

2. That the sale of milk from tuberculous cows should be absolutely prohibited, and that the apparent absence of tuberculous processes in a cow's mammaræ is not an assurance of non-infectious milk.

3. That tuberculosis is raging among the dairies supplying Chicago with milk, and that the population of Chicago is being infected with tuberculosis through its milk supply.

4. That a proper veterinary inspection of the dairies will eventually result in purifying the supply, and that such inspection can be conducted at very small public expense.

5. That the work should be directly under the control

of the City Health Commissioner, who in turn should collaborate with the State officers in their efforts to exterminate the disease.

“CORNES.”

BY THEODORE A. KELLER, D. V. S., NEW YORK CITY,

Read before the June Meeting of the Veterinary Medical Association of New York County.

A few remarks concerning this trouble of the horse's foot will probably be useful to some of the members present.

Corns generally make their appearance in the inner heel, within the bar and crust at or near their junction. We find that a great number of horses are afflicted in this way; and it is supposed that an imperfect system of shoeing has more to do with the production of corns than anything else.

In their acute stage corns generally cause some degree of tenderness, though not amounting to actual lameness. If not attended to at this period, the horse soon becomes lame; and when the shoe is removed for examination, the horny matter in the parts described will be found, upon scraping off the exterior surface, of a dark red color, to a greater or lesser extent, according to the length of time it has existed, or rather to the degree of injury the sensitive parts have sustained. If the shoe be not removed at this stage, its continued pressure on the tender parts, or corn, will at length cause pus to form, which, finding no vent beneath, ascends to the coronet, where it breaks out. Even this is sometimes mistaken for a tread, or blow from the other foot, while the real cause is lost sight of.

In the treatment of corns in their recent state, or before supuration has taken place, the method generally adopted is to pare out the red parts, or what is termed the corn, and so contrive the shoe that, when applied to the foot, it may have no bearing on the tender part. This in slight cases generally affords temporary relief, and enables the horse to go to work again; but in a short time, however, the horse's weight causes

the shoe to again come in contact with the heel, and the inflammation and lameness of course return.

The only effectual mode of taking off pressure from the heel is by means of the bar-shoe, and this can only be applied where the frog is sufficiently prominent and firm to receive its pressure. For should the frog be considerably lower than the heels (viz., less prominent), it must be obvious that the bar-shoe cannot bear upon it, and will therefore be useless. The only thing to be done in this case is to pare away the crust of the tender heel, so that the heel of the common shoe may not rest upon it. I am aware that the original cause of corns is often a natural weakness of the inner heel, or want of sufficient strength in the horn to protect the sensitive parts from pressure of the shoe. We have frequently seen the plan of cutting away the horn (in corns) followed with success, on account of the temporary relief it affords; such a plan, however, is deceitful, and dictated by too shallow an idea of the complaint, for though it gives for the time some relief from the pain when existing, still it leaves what may be termed an increased disposition to it, because it deprives the sensitive parts of the protection of which they already stood so much in need; and it is from this mode of treatment solely that some horses are so frequently, and indeed almost always, affected. The best plan, therefore, is to apply a bar-shoe, as this affords more ample means of throwing the pressure off the affected parts; no excision of the horn ought to be resorted to, unless there is reason to believe that suppuration has taken place. If no horn is to be pared away in corns, what, I would ask, is to be done in circumstances where the bar-shoe cannot be employed—that is, where the frog is much “lower” than the heels, or too rotten and tender to bear pressure?

I am inclined to believe that corns are often rendered inveterate by trusting to such ineffectual means; for the owner, finding his horse relieved, sets off, perhaps, on a journey; the shoe soon bears down upon the heel again, and the bruise or corn is much aggravated; by dint of spur and whip, however, the horse is compelled to go on; and when he arrives at the end of the

stage, so high a degree of inflammation will perhaps have taken place that suppuration cannot be prevented.

While a horse is worked, the shoe should be frequently examined; and whenever the heel appears to be so near the diseased part as to be in danger of bearing on it, it should be immediately removed, and some more horn pared away, so as to have a considerable vacancy between the heel of the hoof and the heel of the shoe, for even if a bar-shoe be applied, the horn will in time grow down, so as to be in contact with the heel of the shoe.

The above is supposed to be about all that is required for corns, but will it cure corns? In some cases it will, in some it will not. It will not cure necrosis of cartilage nor necrosis of the os pedis, neither will it prevent lameness from ossification of the cartilages and the inflammation accompanying it. These and other inflammatory conditions of the heels, falsely called corns, must be treated by more radical measures.

MEAT AND MILK INSPECTION.

BY H. F. PALMER, V. S., BROOKLYN, MICH.

A Paper read before the Michigan Veterinary Medical Association at the recent meeting
at Lansing.

"Guard the food of the people and you guard their health."

We, as a nation, have just passed through a struggle that has cost the lives of many of her brave sons, and out of that struggle has grown a controversy in regard to the food of its army. "Embalsmed beef," "rotten beef," are the words upon the lips of many. We view these published statements and record the word "awful," and at times are inclined to dethrone our own beloved secretary of war, and at the same time we allow a food to be given to our own family—yes, and to our own children, that for the number of deadly bacteria contained the Cuban beef would be a sickly comparison.

We wonder and abhor at the death rate of our wars and think it is something terrible; but we rest content and each

year see more deaths from drinking tuberculous milk than if to-day England and our own country should be engaged in a deadly warfare.

No arguments are needed at this time and before such a gathering to show that inspection is necessary and will save many lives each year, but the main questions with which we are concerned are, "Who shall inspect? How shall we inspect?"

The people of the United States use more meat per capita than any other country save Australia, this being a section where meat is cheap and abundant. Inasmuch as this constitutes one of our principal articles of diet, it should be inspected. In 1881 our pork was prohibited entrance into Germany, France and the principal European countries, because it was thought to be infected with trichinæ. In 1881 congress directed the secretary of agriculture to inspect, previous to slaughter, all cattle, sheep and swine, the carcasses of which were intended for interstate or foreign trade. To-day all the beef sent to Europe, and a greater part of all pork and meat products is inspected. To-day we send pure, wholesome meat to feed foreigners, while we are eating the uninspected, germ-laden products.

The bureau of animal industry is doing a grand work along the inspection line, but as yet a lack of sufficient means cuts short some contemplated work. This bureau has been in existence some fourteen years, and we can partially realize the scope of its work by glancing at its last yearly report.

Meat inspection was in operation in 135 abattoirs located in thirty-five cities. Our fifty-one million animals were inspected, of which the inspectors rejected many thousand carcasses. They sent out enough tuberculin to test 50,000 head of cattle, and gave half a million doses of vaccine, reducing mortality on this disease from fifteen to one per cent. They have given to the hog-raising section of our country a great boom in the serum treatment of hog cholera whereby 80 per cent. of affected animals can be saved. Helped the cattle industry by working up

a harmless dip for cattle whereby the tick of Texas fever can be destroyed.

Of course all this work necessitated the outlay of thousands of dollars, but here is one forcible illustration of a penny spent is a dollar saved. With an average cost of less than one cent apiece for inspection, who can value the saving to the people? Many lives were thus saved, to say nothing of the suffering and distress that was greatly decreased.

We demand that the meat sent to foreign countries shall be inspected ; while we—yes, you and I, are compelled to eat the uninspected meat. There are many inconsiderate and unscrupulous butchers who stand ready to buy that which cannot be put on the foreign market, and prepare it for the home market ; and they will do that thing just as long as there is no one appointed whose business it is to see that condemned meat is put in the tank with the offal and made into fertilizer.

The immediate charge of inspection is given to those veterinarians who have entered the service by a competitive examination. It has been proven, the persons obtained from such examination, one of the requirements of which is that they must be graduates of a regularly recognized veterinary college, are more competent and efficient than non-professional men. The inspectors were placed in the classified service in 1894.

There are certain diseases among animals that render the flesh positively dangerous to use as food—such as anthrax, septic conditions, malignant œdema, and foot and mouth diseases. Others may not be positively dangerous, but should be used with suspicion, as tuberculosis, actinomycosis, Texas fever, swine plague, and any disease that causes a rise of temperature. Others although not dangerous to use as food would be considered very loathsome, as those that are drowned, smothered, the unborn, females in parturient state, and flesh containing parasites.

All animals should be inspected previous to slaughter, as many conditions are there found that would not be detected in the carcass. Fever, fatigue, exhaustion, starvation and excite-

ment can be readily detected on ante-mortem examination and they all affect the quality of the meat.

Education is a great factor in inspectors' work. Those who never see the flesh prepared for food would be horrified to view certain parts that are perfectly wholesome.

A man may think there is no harm in the consumption of tuberculous milk or meat, as no case can be directly proven where such milk or meat caused the disease in the human. In this case they will not accept circumstantial evidence but those same persons would be the twelfth man of a jury willing to incarcerate a man at Jackson the rest of his natural life on circumstantial evidence alone, and that no stronger in one case than another. Experiment has shown that pigs fed on tuberculous milk will contract the disease, and can we think the human family are less susceptible to such diseases than our friend—the hog?

Milk is another important factor in the food supply of our people. Some of us may be vegetarians and refrain from the use of meat, but all of us got our start in life by that one factor milk, this being the only product of nature that combines all elements requisite to a healthy condition. Milk is the natural food of all infants and invalids. Being consumed at that period of life when the body is so susceptible to disease, how careful ought we to be to see that our milk supply is pure and wholesome.

Milk is the most universal product in use. It is estimated that it would take a tank twenty-five feet high and covering one acre to hold the supply used by our people in one single year.

Previous to the year 1870 milk was not known to carry the germs of disease, but it is now proven beyond a shadow of a doubt that milk is one of the disseminators of disease. The temperature just below the body temperature, the most natural one at which milk is kept, is the temperature best suited for the growth and multiplication of germs. Normal milk from a healthy cow is free from bacteria, but there are many ways in which infection may take place. The animal itself, the hands of the milker, and the dust of the stable are each liable to share

its quota of germs with the innocent milk that is being prepared for food.

If milk could be obtained perfectly free from bacteria, its keeping properties and its high value as food would be assured but when we think of millions of these germs in every gallon of commercial milk, any one of which may find a lodging place in our system, and cause our death, should we not be a little careful of the kind of germ we are devouring?

The milk standard is set at the following figures by this state: Twelve and one-half per cent. of total solids, 3 per cent of butter fat, specific gravity between 1.029 and 1.033. Specific gravity of skimmed milk should be from 1.032 to 1.037, and may be sold from cans plainly labeled "Skimmed Milk."

However, at this time we are not as much concerned about the per cent. of butter fat, whether we are buying the milk first drawn from the udder and letting the calf have the last and best, and whether the milk supply is drawn from a herd of pure bred Jerseys or just grade cows, but we are more concerned about the method of handling that milk, the healthiness of the animal producing it, and whether or no the man who milked that cow had any disease that could be transmitted to our family by means of that milk.

Tuberculosis, typhoid fever, cholera infantum, diphtheria and scarlet fever are some of the dangers lurking in commercial milk. These dangers are perhaps greater in the use of milk than meat, for milk is commonly used in the raw state while many of the germs of meat are killed by the cooking of that meat. It is said that cholera infantum or milk diarrhoea causes one-fourth the deaths of all infants, while one-fifth of the infants are victims of tuberculous milk. Is not this then a strong plea for universal inspection of milk?

It is an easy matter to sit down and outline ideal conditions for the handling of milk, but the commercial aspect hinders the carrying out of such an ideal. When we consider that the milk, coming as it does in sharp competition with uninspected milk, and must be sold for a few cents a quart, we can realize why so

much of our milk is uninspected. Educate the consumer and he will be willing to pay the few added cents to each quart of milk in return for receiving pure, wholesome and inspected milk.

And now a few words as to the way inspection of both milk and meat could be bettered. Certainly the United States and each State should work in unison, so that there may be a strict uniformity of laws. All meat should receive the inspector's stamp before it comes to the consumer, even to that piece dealt out by the one-horse wagon that calls at your door. Perhaps this cannot be accomplished with the great number of slaughtering establishments as at present, but I should concentrate these establishments and have municipal abattoirs. There the small butcher who uses but one or two carcasses a week may have all the advantages of killing floor, cooling room and inspector's stamp, as the dealer who uses his eight or ten a day. Inasmuch as inspection adds to the selling value of meat, the owner of those carcasses should pay the added cost of inspection.

All milk dealt out should also be inspected. This does not mean the milk alone, but the inspection of that milk should begin with the animal that produces it. She should be free from disease, in a thrifty condition, kept in clean, well-ventilated quarters and fed on pure, wholesome food. Ensilage, decaying vegetable matter and various other things are known to give a taint to milk. All things used about the milk and milk room should be scrupulously clean. Attendants should be free from communicable diseases. If the milk when first drawn is Pasteurized or heated to 167 degrees F. and kept there forty minutes by live steam and then at once bottled ready for the consumer, many of the deadly germs will be destroyed and no harm done to constituents of milk. Abandon the old form of milk ticket, so that one day it will not be handled by a scarlet fever patient, and the next by a person just in the right condition to help the growth of the few germs adhering to that same ticket.

Inasmuch as the health of our domestic animals plays so important a part in the health of our people, I would say, place

a veterinary surgeon on every State Board of Health. The people need to be educated to know what veterinary science is doing and can do for them to better the sanitary condition. A virulent disease transmissible to man breaks out among our domestic animals. It is at once recognized by the competent veterinarian, measures are taken to prevent the spread of the disease, and who can tell the number of lives saved by his timely work.

Education is the keynote in all this work. Educate the butcher, the consumer, the meat dealer and the dairyman, and you add one item to universal inspection. Give to the dairy schools of our country your hearty support, and the day will soon come when we can eat a piece of meat or drink a glass of milk and have no fear of consuming deadly germs.

REPORTS OF CASES.

“Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

SORE MOUTH IN CATTLE.

By A. E. METZGER, M. D. C., Clyde, O.

In reply to Dr. Fulstow's paper on this subject in June number of REVIEW I will state that I experienced an outbreak of the same disease in the vicinity of Clyde, O. The first symptoms manifested were those of sore mouth, profuse flow of saliva and inability to eat anything unless forced back under the molars, when they ate readily. Dropping off in the flow of milk was another early symptom, in some instances being totally suppressed. The udder in some cases took on a red and in others a purple appearance. The same irritable condition of the mucous membranes seemed to exist throughout the body. There was a flow of mucus from the eyes and nostrils, in most cases tinged with blood. The bowels were invariably constipated, fæces hard and covered with a bloody mucus. The lameness developed usually in from two to five days after the foregoing symptoms were noticed. There was no perceptible swelling of the limbs, but the feet were hot and slight pressure between the digits caused excruciating pain. My treatment was principally local and consisted in a creolin wash

to remove the foetid stench, a powder composed of hydrastis and potassium chlorate, together with a mild laxative of soda sulphate. Recovery invariably followed in from seven to ten days, although the lameness was present for a much longer time, often lasting three or four weeks.

Like the Doctor, I was at first guarded in my diagnosis, thinking they had eaten some poisonous weed, but later it became a marked epidemic; whole herds were sometimes affected, while in others only one or two would show symptoms of the disease, while one cow in particular developed the disease in a severe form that had been stabled continually, fed on hay and grain, with no chance for contagion from other cattle or from pastures; later several cases developed in different herds of hogs, all manifesting the same symptoms, viz.: sore mouth, discharge of mucus from eyes and nose, together with lameness, several of them having to be killed because of the hoofs sloughing off.

After this experience, I pronounced it epizootic aphtha, or foot-and-mouth disease. Possibly I may be wrong, but the symptoms are very much the same.

Like the Doctor, it is information I am after, and if any other brother has had a like experience I would be only too glad to hear from him.

VESICULAR SKIN ERUPTIONS IN THE DOG.

By FRANCIS ABELE, V. S., Quincy, Mass.

Was to called only fox terrier bitch, highly bred, very tender skinned. Owner had three or four, all matured. Was living at the beach. Bitch had vesicular eruptions on face and front feet, most severe between toes and about eyes, evidently the places she could rub most. Did not have the old scurfy appearance of mange, nor the inflamed appearance of eczema, but simply minute vesicles just as close as they could be grouped. It looked like a typical case of ivy poisoning if it had been on a person. Diagnosed it as such here. Bathed with hot water followed by an an ointment of

R Creolin, 3 iij.
Ac. borac., j.
Ol. olivæ, q. s. 3 iv.

Misc. et fiat mistura. Sig. To be applied three times a day.

Internally the patient got

R Sod. hyposulph. pulv., 3 ij.
Misce fiat capsules xjj.
Sig. Give two a day.

Patient recovered completely ; none of other dogs showed any symptoms, though all the time exposed. Hair was not destroyed. One of the members of the N. E. Kennel Club to whom I related the case informs me he has seen similar cases. It is so unusual I cite it here.

EXTRACTS FROM EXCHANGES.

FRENCH REVIEW.

TRIORCHIDY IN THE HORSE [*By M. Ferez*].—At the age of one year, this horse was castrated by the author, who resorted to the method by covered testicle. The horse did well and was sold several months after. During the following year the owner called on Mr. F. to obtain from him some information in relation to the horse and find out if he had been really altered. He had seen some symptoms which made him suspicious—neighing when mares passed by him and presenting in the inguinal region a swelling of peculiar aspect. Was it a champion or a testicle? After waiting a few months longer, the animal becoming decidedly vicious, an operation was decided upon and from the right side another testicle was amputated also by covered operation. The testicle was as big as a fist, rounded in form and about as large in front as behind ; the epididymis was very short and covered the gland only partly. Its internal appearance presented nothing particular nor different from that of any normal testicle.—(*Rec. de Med. Vet.*)

UTERINE GESTATION WITH RABID SYMPTOMS [*By M. Barzoff*].—A little bitch having bitten a child was brought to the author. She had always been very good natured, but that morning was very irritable and looked angry. She did not answer to a call and preferred lying down in dark places. She had a good appetite and was quite fat. She was placed under observation, but nothing developed. She was kept six days, carefully watched, and on the seventh was destroyed, the owner being unwilling to wait any longer. At the post-mortem a tumor as big as a large egg was found attached on the mesentery and surrounded by several envelopes. A longitudinal section made through it exposed a foetus : the section passed precisely through the spine ; the head and paws were well formed. It was a case of ultra-uterine gestation, in which the foetus, arrived at its term of development, had given rise to the symp-

toms, which at first sight simulated so well those of rabies.—(*Rec. de Med. Vet.*)

A RARE CASE OF FECUNDITY IN A COW [*By M. Mossé*].—The subject of this unusual case is a Dutch cow, aged 14 years, excellent milker, which never had any trouble in her many deliveries. This time she has. After delivering a live calf and then a second one dead, she soon shows more laboring pains, and a third calf presents itself by the hind legs. The little fellow is easily brought out; he is dead, and the cow is much exhausted. But that was not all; she is again taken with pains; exploration is made, and a fourth calf is detected in the uterus. The cow is so weak, makes no efforts, and the calf has not yet passed the anterior straight of the pelvis. Four litres of coffee, with half a litre of rum, are given to her, and an injection of ergotine made subcutaneously back of the shoulder. In an hour the animal feels stronger, and one of the hocks of the calf has entered the pelvis. It is secured with rope, the other also, and the delivery completed quite easily. The envelopes were not expelled for a week and passed off in one mass. The living calf weighed 18 kilogs, the others about 20 a piece; altogether with the envelopes and all, some 90 kilogs.—(*Journ. de Med. Vet. and Zootech.*)

SEROTHERAPY OF ANASARCA [*By M. Botz*].—A dappled grey gelding, five years old, convalescent from an attack of strangles, is six days after found suffering with anasarca, and presents the ordinary symptoms of the disease. Besides an internal treatment of sulphate of soda, nitrate of potassæ, acetate of ammonia, digitalis powder and naphthol, he received for several days in succession 40, 30, 20, 20 and 10 cubic centimeters of antistreptococcic serum, when he improves. Three days later he has a relapse, and with the same treatment receives again 30, 30, 20, 10, 10 cubic centimeters of serum. This means of treatment being exhausted its administration is stopped, and the next day the symptoms are such that the recovery of the animal seems very doubtful. A new supply of serum allows the administration again of 40, 30, 30, 20, 20, and 20 more centimeters, when serotherapy was stopped. Convalescence was long. Considering the peculiarities of the two relapses, and not desiring to explain them, the author says that he never had occasion to find fault with that treatment, providing the serum was employed at the outset of the disease and in massive doses.—(*Jour. de Zootechnie.*)

PERFORATION OF THE UTERUS IN A COW—RECOVERY.

[*By M. J. Biol.*].—This unusual case occurred twenty-five years ago, says the author. The cow had calved and had eversion of the uterus. She was tympanitic, lying in the costal position, threatened with asphyxia, when Mr. B. was called to see her. Her condition was as follows: "Costal decubitus; rumen enormously distended; extremities extended and now and then struggling; eyes staring and protruding; mouth widely open; breathing short, rapid, dyspnoëic; almost pulseless; rectum prolapsed and cyanosed. Toward uterus, the uterine cornu anteriorly gravid and completely everted, free from placenta, appears as a large membranous sac, very thin, purplish, flabby, soiled with blood and manure, and measuring, including the vagina (also prolapsed), about 30 centimeters in length. Increasing the severity of the situation, there was a big ball of rye straw, the size of the arm of a man, perforated through and through the uterus, some fifteen centimeters from the prolapsed vagina. This was the result of the manipulation used to pull the animal out of the barn." Perhaps it would be better to let the butcher finish her? However, trocar was thrust into the rumen and tympanitis subsided. At the same time, as it went on, the contractions of the uterus began to return, from the extremity of the horn toward its base, in its width as well as in its length. The tear seemed to reduce also—and after a short time, reduction was completed after thorough cleansing of the parts. The cow made a complete recovery.—(*Rec. de Med. Vet.*)

NEW MEANS TO DIAGNOSE TUBERCULOSIS.—Dr. Liort has used in human patients the following mixture in the diagnosis of tuberculosis: Chloride of sodium, 5 parts; sulphate of sodium, 10 parts; distilled water, 1000. Or, again: Chloride of sodium, 6 parts; sulphate of sodium, 10; magnesia, 2; distilled water, 1000. This serum is used like tuberculin. It gives in tuberculous patient a characteristic reaction nine hours after the injection. It is harmless in any case. These injections deserve a trial in veterinary practice, says the *Semaine Vétérinaire*, but it does not give the dose to inject.

INGUINAL FISTULA DUE TO ABSCESS OF THE RIGHT KIDNEY [*By MM. Butel and Bourges.*].—The horse was castrated in July. In November it had an abscess in the right groin and another the following February. When examined in the month of August of the same year it has a fistulous tract which allows the entrance of a probe up as far as the superior inguinal ring. There is no champignon, the scrotum is clear, the animal is not lame and his condition is good. Injections of cresyl

are prescribed with keeping the parts clean. Gradually the general condition changes; he loses flesh and strength. The animal is thrown, the tract of the fistula enlarged and the hand can be introduced into the inguinal canal, as far as the ring and into the abdomen, where a thick indurated cord is felt; it opens downwards into the fistula and from the inguinal ring runs upwards towards the right kidney. Ultimately the animal dies. At the post-mortem, between two and three litres of sero-bloody effusions are found in the abdomen; the peritoneum is inflamed and the right kidney, soft and fluctuating, forms a large round mass, which from its postero-superior face gives attachment to the indurated cord, mentioned above. This runs along the right of the vena cava, towards the superior inguinal ring, where it is adherent to the atrophied spermatic cord. The envelope of the kidney is thick, and its tissue degenerated; it forms a large abscess, multilocular, with brownish walls, partly putrified, containing more than two litres of pus. The right ureter is normal; the left kidney hypertrophied. The bladder contains a little normal urine; its walls are not altered.—(*Bullet. Soc. Cent.*)

BELGIAN REVIEW.

PROLAPSUS RECTI IN THE DOG—CONTENTION WITH PERITONEAL SUTURE (*By E. Lienaux*).—The recovery of prolapsus recti is often obtained with André's suture—in some cases amputation of the prolapsus is indicated; but whether because of great difficulties in reduction or of gangrenous condition of the intestines, there are cases where amputation is only applicable. In such instances the author recommends the reduction through the abdomen. To this effect this cavity is entered in the left flank, and by simple exploration of the finger the colon is readily discovered: a gentle pull from backwards forward brings the rectum back in its position. The operation is completed by fixing the colon to the flank by suture. In one large dog, which had a prolapsus (one month standing), which had been treated several times by the suture of André, the author resorted to his mode of treatment: general anæsthesia, antisepsy of the left flank, incision through the abdomen, reduction by pulling the colon from backwards forwards, and then application of "four silk stitches, half a centimeter apart, applied horizontally on a level with the superior extremity of the peritoneal incision, involving the serous and muscular coats

of the colon and the parietal peritoneum. Two other points were placed vertically which, closing the peritoneal wound, secured also the two muscular coats of the colon. The intestine is then sutured to the flank by a series of stitches arranged in T shape." Sutures were applied, iodoformed dressing applied, milk diet, etc. Cicatrization took place by first intention; there was no relapse, although it is more than three months since the animal was operated upon.—(*Annales de Belg.*)

HOT FUMIGATIONS—THEIR DANGER [*By Mr. Verlinde*]. —Of all the common treatments recommended in diseases of the respiratory tract, the one which is most known is the administration of fumigations made with steam from hot water or mixtures made with it (bran, hay, oats, etc.). Every horse owner has recourse to it, and it is peculiar that taking in consideration the accidents that may result from its improper or careless application, there are not a greater number of them recorded either as burns of the mouth, tongue, or others more or less severe. The author relates one which by its severity deserves attention: It is that of a horse which, suffering with a slight cough, had his nose bag, containing flaxseed and bran boiled together, put on his head just as the mixture was taken off the fire. Of course, in a few instants the animal manifested his pains and it was with great difficulty that the bag was removed, not until after ten minutes of several attempts. Once free from the bag, the animal seemed relieved and it was hoped no bad results would occur. But soon the lips and nose began to swell, the head became enormous, the tongue swollen, hard, almost cylindrical, respiration dyspnœcal, and almost *entirely buccal*. The condition became more and more serious, the breathing exceedingly laborious, the animal very restless, large patches of the buccal epithelium sloughed out, there were violent spells of coughing, the pulse rose to 64, the temperature to 39.4 C; there were cutaneous sloughs, offensive odor from the mouth and nose. Tracheotomy had to be performed and the wound had a bad aspect. Feeding by mouth was impossible and rectal injections of milk were resorted to. Creolined washes, boric ointment, camphorated applications were used externally. After four or five days improvement began to set in—cicatrization of the mucous membrane and of the skin went on gradually. The wound of tracheotomy closed after some time, but it took more than a month to repair the mischief done by the application of the old-fashioned method of fumigation.—(*Annales de Belg.*)

SATURNISM IN HORSES [*By MM. Mosselman and Hebrant*].—Lead poisoning is comparatively rarely observed in horses. Some experiments of Hortwigt, Dominik, and Gerlach, show the great resisting power of solipeds to the toxic action of lead salts, and yet there are a few cases on record—such as those of Trousseau, Ranque, Stotz, Reiner, Meyer, and Schmidt—in which one of the principal symptoms has been the manifestation of laryngeal trouble, shown by a more or less marked roaring. The authors resume the investigations that they have made and the interesting conclusions they reached from cases observed on a farm situated some 600 metres from a lead factory. On that farm all the plants are poor, sickly, and covered with more or less dust; the dew is always dirty. In that exploitation three colts and two animals died; another which was taken sick was treated with iodide of potassium and improved. It was again taken ill and ultimately died. Two others died also. After post-mortem of these three subjects, chemical analysis revealed the presence of lead. The balance of the stock was submitted then to a treatment of iodide of potassium, and the roaring which had been a manifestation of the sick animals, was soon relieved and recovery complete in two months. Inquiries were made in relation to several cases of death which had occurred among the cows and the fowls of surrounding places, but no information could be obtained except that the grass that was given to them had been cut from the lands of the farm surrounding the lead factory. The food (hay and seeds), the earth of the place, were then analyzed, and from them also lead was extracted in quite large quantity. The conclusions drawn by the authors are very interesting: (1) The earth of places surrounding lead factories may contain a certain amount of lead and be the starting point of lead poisoning. (2) The vegetables growing on such land contain a certain quantity of lead and may be toxic, if not by assimilation of the lead in the plants, by the atmospheric dust, dew and earth deposited on them. From the observations collected the authors say: "If the dose of lead is sufficient, saturnism may occur and prove fatal rapidly. The toxic effects are principally marked on the pneumogastric through its inferior laryngeal branch, hence the roaring. Bovines and fowls must not be allowed pasturing or feeding on suspicious lands on account of their proximity to lead factory."—(*Annales de Belg.*)

VERMICULAR BRONCHO-PNEUMONIA AND TUBERCULOSIS [*By Prof. T. Henkrickx*].—Every practitioner knows how dif-

ficult the differential diagnosis is between tuberculosis and some diseases of the thoracic cavity, which are not microbian. The following case shows one more proof of it. A cow was brought to the author with the history that she was bought recently, was in good condition, had a calf, everything normal; was turned out for a while, when she was noticed to be ailing. Her condition grew worse and at last she was brought to him for advice. She was then in a cachetic condition, her whole organism is affected and presents indications that she is very ill, the trouble being located by most minute examination in the chest. The respiration is accelerated and painful, 45 to 55 per minute, it is abdominal and dyspnœcal. Aborted cough by spells, discharge from both nostrils without bacillus of Kôch (by microscopic examination), dullness on the left side of the chest, back of the shoulder. The case is one of broncho-pneumonia of both sides, more marked on the left. Of what nature? Tuberculin test is applied with thermic reaction of 1.3° and increased respiration to 92. Diagnosis of tuberculosis is made. The cow dies a little later. At the post-mortem the lungs show alteration of broncho-pneumonia: interlobular emphysema, whitish muco-pus in the large bronchi, a certain number of strongyli in the middle size bronchi, etc. But no mark of tuberculosis in the lungs nor anywhere else. Although the reaction by tuberculin had been only 1.3° , the case was considered as one of tuberculosis by taking the cachectic condition of the animal. Having full faith in the value of tuberculin and the correctness of its declaration, the author continued his investigation on the cadaver, and found at last, a subglossal gland with a caseous centre, as big as a hazel nut, deeply situated in the intermaxillary space. When tuberculin has spoken and the lesion is not found, do not say that tuberculosis does not exist, but that you have not looked well for it.—(*Annales de Belg.*)

THE AUTOMOBILE IN PRIVATE USE.—In relation to the use of the automobile carriage in this city Mr. A. C. Bostwick, who some time ago bought a motor phaeton, says: "My automobile cost me \$2500 in the first place; then for a year I had to employ an engineer at \$60 a month, with board and lodging; added to this I used up two batteries within the year at \$400 each, not to speak of new tires and repairs." Eight hundred dollars for batteries! At \$35 per month a horse could be kept for two years on that item alone.—*New York Herald*.

REVIEW OF BIOLOGY.

TUBERCULOSIS OF MAMMALIA AND TURKEYS [*By MM. Cadiot, Gibert and Royer*].—The experiments which have shown that gallinaceans take with difficulty tuberculosis of mammalia have already suggested therapeutic attempts. For some years the authors have made researches and have thought that the best results would be obtained in trying to increase the natural resisting power of some birds with repeated inoculations of human or canine tuberculous cultures, living or sterilized. Chickens giving not enough blood, they operated on turkeys. They experimented on forty birds. Several received between 10 and 12 virulent inoculations in veins or in the peritoneum. A certain number of them died; in most they found only hepatic cirrhosis; in three the liver and spleen contained numerous tuberculous granulations very rich in bacilli. It was already known that turkeys easily become tuberculous, but it was supposed that they were contaminated by other gallinaceans and especially chickens. The facts presented by the authors show that in some cases infection can be transmitted by mammalia. However, in turkeys as in chickens, inoculations have to be multiplied. By this means, instead of increasing the resisting power, it is reduced. However, the positive results are yet rare; to have tuberculosis developed regularly, injections of serum from mammalia must be made at the same time.—(*Soc. de Biology.*)

OXYGENATED WATER IN SURGERY [*By M. Lucas Championniere*].—After establishing that aseptic practice does not exist and has never existed for general surgery, and that no ordinary surgery is done without antiseptics, the author reviews comparatively sublimate and phenic acid. The first substance is without value when applied on a suppurating wound and especially when the suppuration assumes a certain character of malignity. Phenic acid, on the contrary, is better. Nevertheless, in concentrated solution it acts only slowly. Chloride of zinc is one of the rare substances which reduces suppuration. But its effects are irregular. For the author oxygenated water has a powerful antiseptic action on ferments; it possesses a special power of impregnation on the tissues, so to speak, penetrating them. Its application in surgery imposes itself. It may be used pure as delivered to the trade, containing 10 or 12 volumes of oxygen.—(*Acad. de Med.*)

SUPERRENAL CAPSULES DURING FŒTAL LIFE [*By MM. Langlois and Rehns*].—When the functions of these organs were entirely unknown, some observers, noticing their relative size in the fœtuses and new-borns, assigned to these organs a special part during the first periods of development. Recent researches have confirmed the experiments of Brown-Sequard and shown that they exercise an important part, essential even during life. However, there is reason to ask if the functions attributed to-day to those glands existed previous to birth. Indeed, it is known that some glands, like those annexed to the digestive canal, do not enter into function until after birth or at least have their own activity only from that moment. The authors could not, to solve the question, remove the superrenal capsules during intra-uterine life and observe the effects on the vitality of the fœtus; they had to be satisfied to determine if these fœtal organs contain the vaso-tonic principle so characteristic of the adult capsulæ. They experimented on fœtuses of guinea-pigs, rabbits, lambs, and finally on a few human fœtuses. But their researches were more specially made on lambs, which are easier to get in good condition. The experiments made with capsules of fœtuses of rabbits and guinea-pigs, having given identical results, the authors conclude that at the end of the first half of gestation (60 days for the fœtus of lambs, which is carried 140 days; 30 days for that of guinea-pigs, which carries 65 days) the superrenal capsules contain and therefore must pour in the blood the characteristic vaso-tonic substance.—(*Soc. of Biol.*)

THE SCOURGE OF TUBERCULOSIS.

MOVEMENT TOWARD EXTIRPATING THE DISEASE IN CATTLE
GROWING—THE PUBLIC JUST AWAKENING TO THE GREAT
DANGER INVOLVED—THE LAWS GOVERNING IT IN THE
VARIOUS STATES OF THE UNION.

CHICAGO, ILL., June 18.—To ascertain in detail what steps have been taken in the United States toward extirpating tuberculosis in cattle—the medium, according to physicians, through which the malady is most readily invading the human race—the *Tribune* prints a report from nearly every state and territory in the union.

The most salient fact presented by the report is that the scourge is rife in many states because of a lack of stringent

sanitary laws. Ignorance of the danger is given as the explanation, and many of the states are waiting for an awakening of public interest like that which has arisen in Illinois.

Mississippi, Georgia and Montana expect to pass laws at their next legislatures aiming at exterminating tuberculous cattle. Governor Mount, in behalf of Indiana, promises to act as soon as another state takes the initiative. Some states have anti-tuberculosis laws which are ineffective because of inadequate appropriations. In Ohio, New York, Missouri and Washington, cattle are tested and condemned regardless of the wishes of the cattle owners. Massachusetts appropriated \$75,000 this year for the extermination of tuberculous cattle. In that state the carcasses of condemned animals are buried. Pennsylvania appropriates \$50,000 a year for the purposes, and that sum is considered insufficient. In Mississippi condemned cattle are shot and hauled to the woods.

Climatic conditions in some of the south and southwestern states are reported as being antipathetic to the prevalence of tuberculosis. The high altitude of Wyoming keeps cattle in that state free from the disease. In South Dakota, Oklahoma, New Mexico and Florida cattle are practically non-tuberculous.

Of the cities Buffalo has elaborated ordinances prohibiting the sale of milk from cows not known by test to be free from tuberculosis. The system employed there is much the same as has been suggested for use in Chicago.

TEXT OF THE QUESTIONS.

The exact questions asked by the *Tribune* and to which the reports from various states are in answer were as follows:

What steps, if any, has your state taken toward extermination of tuberculosis in cattle, and particularly in milch cows?

How does the law operate?

How much does the state appropriate for this purpose?

Have the live stock, health or other authorities power to test cattle with tuberculin without the consent of cattle owners?

Have any cities of the state taken municipal action to restrict the sale of milk not known to be free from tuberculosis?

If nothing has been done by the state or city government, to what extent has tuberculosis attacked cattle in the state?

No state reports the existence at any time of an epidemic of tuberculosis. The disease does not break out in epidemics, it is maintained by veterinarians; it is a slow constant scourge, and complete extermination is the only remedy.

Following are reports from the leading states :

SPRINGFIELD, ILL.—Secretary C. P. Johnson of the state board of live stock commissioners said of the work of the board in carrying on the war against tuberculosis :

“During the two and a half years prior to June 1 about 1200 cattle were tested and over 12 per cent. were found to be affected with tuberculosis and were destroyed.

“The last general assembly having made an appropriation of \$5000 per annum for the purpose of making compensation to owners for tuberculous cattle destroyed, the board on June 1 commenced active operations and up to the first of last week had tested 358 cattle, of which number 108 reacted and were found to be tuberculous on post-mortem examination, a much larger percentage than had resulted from the tests made during the last two years and a half.

“The attorney general recently in an opinion held that under the law of this state our board has full power to make physical examination of any herd where the disease is reported to exist and on reasonable ground for believing that the disease exists in a herd to place the animals in quarantine and compel submission to the tuberculin test, and the board proposes to proceed on this line, as well as testing all herds on the application of the owners, so long as the funds provided by the legislature last. The tests will be made as nearly as possible in the order of the applications therefor, the board having now about 1000 cattle booked for the test. All animals of private individuals are appraised, and the owner of any animal destroyed receives 15, 25, 35, 50, or 75 per cent. of the valuation, according to the class that the animal falls in, which can be determined only by the extent to which the disease has developed, as disclosed by the post-mortem examination. The board will enforce rigidly the proclamation of the governor against the importation into this state of dairy and breeding cattle from other states that have not been officially tested with tuberculin.”

ALBANY, N. Y.—The legislature of 1894 enacted a law empowering the state board of health to exterminate tuberculosis in cattle. Local boards of health supply the state board with information, and infected herds are isolated and killed by the state officers, the owners lodging their claims for reimbursement with the state comptroller. The law has worked satisfactorily, but on account of the small appropriations made by the legisla-

ture during the last few years little more than educational work can be carried on. The appropriations have not in any year exceeded \$25,000 and have been as low as \$10,000. The last legislature failed to make an appropriation. The tuberculosis committee of the state board of health has full authority under the law to test cattle with tuberculin if in its opinion the animals have tuberculosis. Many local boards of health require the owners of herds supplying milk to their municipalities to have clean bills of health for each animal. Interest in bovine tuberculosis has largely increased throughout this state during the last year.

BUFFALO, N. Y.—Health Commissioner Ernest Wende has succeeded by methods of his own in protecting Buffalo from the milk of tuberculosis cattle kept outside the corporation limits. In January, 1895, he framed a set of milk ordinances, which give him all the power he needs within the city. Every person who sells milk is required to post conspicuously a card showing by whom the milk is supplied. Thus a complete list of the farmers is obtained. All dairymen are then notified to have their herds examined by a trained veterinary surgeon and to file a certificate of the examiner in the office of the board of health. The herds of dairymen who do not comply with this request are marked "suspicious." When information is refused by any dairyman his product is held to be suspicious, and is interdicted at the city line. This scheme has worked to the commissioner's entire satisfaction.

BOSTON, MASS.—Massachusetts, through its state board of cattle commissioners, has battled earnestly against tuberculosis for several years. The board for the last four or five years has devoted its attention particularly to tuberculosis, with satisfactory results. Each city and town in the state appoints one or more inspectors to watch for infected cattle. The suspected cattle are isolated and tested by tuberculin. If the tuberculin reacts, the animal is killed and its carcass burned. The owners of condemned cattle are remunerated by a sum not exceeding \$40 from the appropriation made by the legislature. All cattle which are brought into the state from other states are quarantined. In 1896, when the agitation regarding tuberculosis was at its height, the legislature appropriated \$300,000. In that year the commissioners killed 5198 tuberculous cattle and paid the owners \$173,206. In 1897, \$250,000 was appropriated; 9991 cattled were tested, 5275 condemned and killed and \$179,867 paid for them. In 1898 the legislature cut the ap-

appropriation to \$20,000. Five hundred and six cattle were killed at an expense of \$13,732. This year \$75,000 was appropriated, not a sufficient sum for extensive operations on the part of the board. Offenses against the statutes which prescribe the quality of milk are so severely punished that violations are comparatively rare.

HARRISBURG, PA.—Pennsylvania expends \$60,000 a year for the extermination of cattle afflicted with tuberculosis. Test is made on cattle on application from the owners. Cattle killed are paid for at the rate of \$25 for common cows and \$50 for registered animals. Cattle found to be infected are killed at once. The state live stock sanitary board prepares tuberculin for the state's use, but it is furnished free to any cattle owner who wishes to test his herd. During 1898 the number of inspections made was 14,437, and among these 1348 were condemned. The cities have made inspections of milk in a perfunctory way, but little has been done to restrict the sale of milk not known to be pure. The pure food department caused many arrests of dairymen selling impure milk.

PHILADELPHIA, PA.—On October 16, 1894, the board of health of the city of Philadelphia adopted the following resolutions: "Resolved. That the chief inspector of milk keep a book in which shall be registered all herds of milk cows that supply the city of Philadelphia that have been certified as free from tuberculosis by the tuberculin test; also of such as have not been thus reliably certified and which are therefore 'suspicious,' which record shall be open to the inspection of the public; said records shall contain the names of the dealers supplied by such herds."

HARTFORD, CONN.—When any contagious disease exists among cattle in this state the commissioner may quarantine them and prohibit the sale of their products. Local authorities are required to report contagiously diseased cattle to the commissioner. For the year ending on September 30, 1898, the state paid \$1060 for seventy-one cattle condemned and killed. The state does not appropriate a specific amount, but leaves it to the judgment of the commissioner. The tuberculin test has been wholly abandoned in Connecticut. Some of the cities required the physical examination of all cows whose milk is sold within their limits, and the legislature now has under consideration a general law on the subject. Commissioner Sprague says in his report that tuberculosis prevails, but not to an alarm-

ing extent, nor is it increasing among the 207,000 cattle in the state.

SACRAMENTO, CAL.—By the law passed last March supervisors in counties and the state dairy bureau are required on the report of the state veterinarian to proceed immediately to eradicate the disease. The governor will appoint the veterinarian shortly. Eight thousand dollars was appropriated. All the principal cities of the state by the appointment of milk inspectors have taken action to restrict the sale of milk not known to be free from tuberculosis. In several counties there are official veterinarians whose duty it is to exterminate diseased cattle. The official veterinarians and health officers have the power to test cattle with tuberculin without the consent of cattle owners.

ST. PAUL, MINN.—St. Paul, Minneapolis and other cities milk dealers must take out licenses, which are granted only where the cows are proved to be healthy. No specific appropriation is made by the legislature for the control of tuberculosis, the expense being borne partly by the cities and towns and part coming out of the general fund of the state board. This board, as well as local boards, has the right to test suspected cows whether the owners consent or not, and the state board can prohibit the sale of milk by any dealer who has diseased or suspected cattle. It has full power of quarantine.

INDIANAPOLIS, IND.—No step has been taken by the state of Indiana to exterminate tuberculosis in cattle. The state health board has arbitrarily adopted a set of rules for the care of dairies. Milk cannot be sold either in Indianapolis or Fort Wayne from dairies where the test is not made and in this way the tuberculin test is made possible. A bill introduced in the last legislature providing for the state inspection of dairies and for making the tuberculin test on all milk animals was not passed. Governor Mounts has not encouraged this move, preferring to wait for results from other states.

PROVIDENCE, R. I.—Rhode Island has taken active steps to exterminate tuberculosis in cattle, and is especially stringent in looking after milch cows so affected. The state board of agriculture has authority to appoint a commissioner for each county in the state, whose duty it is to visit and inquire into the condition of any domestic animals. The board is empowered to kill infected animals and dispose of the carcasses.

DES MOINES, IA.—Tuberculosis among cattle in this state

has been largely eradicated. All animals found to be affected are destroyed. Heavy penalties are attached for failure to carry out the provisions of the statute. Large numbers of dairy cattle have been condemned and destroyed under the law. Thus far the appropriations for this department have been limited to \$5000, but there is every indication this amount will be increased at the coming session. A corps of assistants, including one veterinarian appointed by the governor in each congressional district, assist the state veterinarian. The dairymen are attempting to secure the passage of a law requiring all stockmen to give a certificate of tuberculin test with every animal sold.

JEFFERSON CITY, MO.—Missouri has no tuberculosis or other disease among cattle. Ten citizens can petition the county court for inspection by the veterinary surgeon of cattle believed to be diseased, and the surgeon, after inspection, can have cattle killed or quarantined without consent of the owner. The governor can quarantine against cattle coming into the state. For killing diseased cattle the state pays not to exceed \$30 a head. Nearly all cities have ordinances for the inspection of milk and condition of dairies and the law is strictly enforced.

CONCORD, N. H.—The extermination of tuberculosis in cattle and the prevention of its importation from other states is in the hands of a board of cattle commissioners appointed by the governor and council. It is given absolute power to make tests with tuberculin. Cattle in which the tuberculin test shows the presence of tuberculosis are killed and their owners recompensed from the state treasury. No special appropriation is made for this purpose. The largest expense of the commission in any one year has been \$16,000.

AUGUSTA, ME.—The Maine legislature in 1889 passed an act for the purpose of extirpating all infectious and contagious diseases among cattle. The three cattle commissioners are authorized to enter any premises where they have reason to believe tuberculosis exists. Any person who refuses the commissioners admission is punished by a fine of \$100 or ninety days in jail, or both. The state appropriates \$5000 annually. Veterinary surgeons have power to kill cattle affected with tuberculosis. In the majority of the cities a milk inspector is elected to see that no disease is present.

TRENTON, N. J.—New Jersey tuberculosis commission works in conjunction with the state board of health and the state

dairy commission. It has an annual appropriation of \$5000. All cattle discovered with tuberculosis are killed, and the owners are paid three-quarters of the animals' value as determined by appraisers.

HELENA, MONT.—There is a general state live stock sanitary law relative to tuberculosis in cattle. There is a live stock indemnity fund of \$10,000 to meet expenses connected with the extermination of all contagious and infectious animal diseases, State Veterinarian Knowles employs the tuberculin test with or without the consent of the cattle owner. The dairies have not been systematically examined.

COLUMBUS, O.—The live stock board has authority to test cattle without the consent of the owners, provided the stock is paid for by the state. The municipal authorities of Cincinnati, Cleveland, Springfield, Dayton, Columbus and other Ohio cities have taken action to restrict the sale of milk not known to be free from tuberculosis, and with the best results. Several years ago the disease was a menace to the cattle industry of Ohio, but under the bureau of animal industry it has been curbed, infected herds destroyed, and conditions generally improved.

MADISON, WIS.—The state board of health, state veterinarian and experimental station are co-operating in eradicating tuberculosis. The law requires that all animals found affected with tuberculosis shall be destroyed, compensation being paid for the same. Tests are made by the state veterinarian on request of local health officers, and in case animals react to tuberculin test their value is appraised and the state pays the owner two-thirds of this valuation. In some cities ordinances require all animals furnishing milk for human consumption shall be tested with the tuberculin test before the milk can be used.

LINCOLN, NEB.—The live stock inspection laws of Nebraska are weak and practically non-operative, and such steps as have thus far been taken looking to the extermination of tuberculosis in milch cows have been at the instigation of the owners themselves. The live stock commission has no authority to test cattle without the owner's consent. Action has been taken at Omaha to prohibit the sale of milk not known to be free from tuberculosis. Similar action is contemplated at Lincoln.

SANTA FE, N. M.—New Mexico has a cattle sanitary board with full power to quarantine, inspect and slaughter cattle infected with tuberculosis. A tax is levied for expenses of the board, which can meet with the governor, auditor and treasurer, if epidemic prevails, and order special levy to be made for funds.

It has authority to stamp out any disease. Municipalities have taken no action. It is not believed the disease exists on the range in this altitude.

ATLANTA, GA.—There is no legislation bearing on tuberculous cattle. Commissioner of Agriculture Stevens says the disease is not as common here as it is in the middle western states, but it is present in sufficient frequency to warrant rigid and comprehensive legislation. It is his intention to ask the next general assembly to enact a general law covering all phases of the affair.

LANSING, MICH.—The Michigan commission promptly tests all cows suspected of being tuberculous, and all found infected are slaughtered. The owner is paid \$1 for each head slaughtered. During the last two years about 1000 head of cattle, a large proportion of which were milch cows, have been tested for tuberculosis and the board concludes that less than two per cent. of the cattle of Michigan are affected.

OLYMPIA, WASH.—The general laws provide for the destruction of diseased cattle by the state veterinarian with or without the consent of the owners. The state dairy commissioner has the power to examine, test and seize any milk he may believe to be impure and prosecute for violation of the law. It is made a misdemeanor to sell or offer for sale impure milk. Tuberculosis is not prevalent.

CHARLESTON, W. VA.—The president of the state board of agriculture is empowered to order condemned, quarantined or killed any animal found afflicted with a contagious disease. This may be done without the consent of the owner, who is entitled, however, to be reimbursed out of a fund provided for this purpose. The cases of tuberculosis so far discovered have been in scattered herds.

AUSTIN, TEX.—Several years ago there was a prevalence of this disease among the cattle in the southern and western portions of the state. But by dint of hard work it was effectually stamped out and now it is not believed it exists anywhere in the state. The live stock sanitary commission has absolute power.

RALEIGH, N. C.—All milch cattle brought into North Carolina have to be accompanied by certificate of health. There is no power given by law for testing cattle for tuberculosis. There is little tuberculosis in cattle in North Carolina, less than one-fourth of one per cent.

NASHVILLE, TENN. —The examination of herds of milch cows for tuberculosis is now going on in this state. The sanitary board has full power to test cattle. The counties in which animals are slaughtered have to pay for same at a valuation placed on them by two disinterested parties.

There are no special laws in Kentucky, Mississippi, Kansas, Oklahoma, Florida, Wyoming, Idaho, South Dakota, Arkansas, Nevada and Virginia.

CORRESPONDENCE.

SCHMIDT'S TREATMENT FOR PARTURIENT PARESIS.

MT. STERLING, ILL., May 29, 1899.

Editors American Veterinary Review :

GENTLEMEN:—I wish to report that I am using Dr. Schmidt's treatment for parturient paresis this year with the most satisfactory results. I have treated twelve cases up to this date with a loss of three. The disease is more prevalent this year than I ever saw before. I can account for it in this way: The grass is very rank and rich, and cattle are fatter than they are ordinarily. Later I expect to give a report in detail, as I have watched my cases closely.

Yours truly,

E. M. NIGHBERT.

MORE EXPERIENCE WITH THE IODIDE OF POTASSIUM TREATMENT FOR PARTURIENT PARESIS.

COLUMBIANA, OHIO, June 15, 1899.

Editors American Veterinary Review :

DEAR SIRS:—Have just finished with my seventh case of parturient paresis treated by the Schmidt method. The last three cases died, but in every instance I was called too late to be of any service, the weather, too, being very hot. No. 5 died in four hours. Both 5 and 6 were comatose with oral breathing when first seen by me. No. 5 had had a swollen udder for two or three days prior, and the owner had applied meat tryings all over the gland, and I noticed when I removed the fæces quite a quantity of clotted blood, a vermillion color. In reading up the subject in Zuill's translation of Friedberger and Fröhner's "Pathology and Therapeutics," Vol. I., I see that they make mention of the fact that in meat and fish-brine poisoning the blood is of a vermillion color. After death I examined the blood by cutting into the jugular vein, when I found it rather dark. This cow went down on the second day after calving.

No. 6 was an eight-year-old cow, which calved in the evening and was found down the next morning, remaining conscious until 1 P. M., at which time I was sent for, seven miles away, and when I arrived she was comatose and breathing through the mouth. I informed the owner that I was afraid it was too late. I, however, applied the potassium iodide treatment. The temperature rose from 96 degrees to 105 in five hours; respirations short. Some regurgitated food about the nostrils and some, I think, found its way into the trachea. She died the next day, without ever rallying, not being able to keep her on her sternum.

No. 7 was an eight-year-old, and had dropped her calf at noon on Friday, June 9, being unable to rise at 5 o'clock the next morning. The owner gave her a quart of tansy tea, and came to see me at 5.30 P. M. He said she was on her side at that time, but had been on her sternum all day. I arrived at the place at 6.30 P. M., and found her on her side, but not wholly insensible. I drew her urine, milked her out, and thoroughly washed and disinfected her udder. I then injected 150 grains of the potassium iodide solution into the four teats of the udder, propped her up on her sternum, and left at half-past eight. At 9 A. M. Monday I returned, and found that she had rested well all night, was still slightly comatose, and repeated the iodide solution, giving 120 grains this time. As the heart's action was rather weak, I gave hypodermically 1.10 grain of nitro glycerine and 1.8 grain of strychnine, which improved it very much. About noon I removed the calf, and she seemed to pay a little attention to it. Toward evening she raised her head and seemed a little groggy. During Monday night she bloated some, and the owner said that about 2 A. M. she became conscious, her bowels moved, and she drank some water. On Tuesday the owner came to see me and said she was still down and had not eaten anything and was breathing short. I went to see her at 2 P. M., and found that her bowels had ceased to act, and there was quite a discharge from the nostrils, mixed with grass and mucus. I informed the owner she had bronchial trouble and would die. There was no rise in temperature, it being the same as the day before (101) I could not convince the owner of the seat of the trouble; he would have it that the trouble was in the third stomach. I gave her some stimulants as she was trembling and striking or kicking at her abdomen. To satisfy him I gave her two grains of eserine and pilocarpine (Merck's preparations) hypodermically, and informed

him that she would not live through the night. She died in thirty minutes. I held a post-mortem and found the stomach and contents in good shape, which the owner admitted. In the small bronchial tubes there was quite an amount of ingested food, some pieces half an inch long. The small intestines for about thirty feet, 6 or 8 feet anterior to the rectum, were filled with bloody water. The owner was a very poor nurse.

Schmidt's treatment is all right if applied early enough, but when foreign substances are allowed to fall into the trachea nothing will save them. The first four cases I treated, and which I reported through the REVIEW some time since, were all treated early in the attack.

J. B. CAUGHEY.

EVIDENCE FROM AN INTELLIGENT LAYMAN.

To the Editor of the Breeder's Gazette :

One day last week I found a cow lying outstretched in the pasture unable to rise and almost unable to hold up her head. Her calf was three days old. In the morning she had seemed all right, although it was noted that she gave less milk than she ought. It was a plain case of milk fever, parturient paresis, so much dreaded by all dairymen. This cow was a Holstein-Friesian, a notably good milker, in pretty good condition. When I saw her at noon I pronounced her dead, or as good as dead, but I sent for a veterinarian anyway and putting her on a sled drew her to the shade of a tree. When the doctor arrived and looked at her he pronounced her pretty bad and fast sinking. Then he asked me if I knew of the new treatment for this disease. I expressed my ignorance and he told me of Dr. Schmidt's experiments in Denmark. He wished to try the treatment on this cow. Having no faith in any other treatment, I told him to go ahead.

First he gave her a draught of aloes, I believe, then carefully milked her, drawing out every bit of the milk. He washed her udder carefully with an antiseptic, and with some sterilized water in which he dissolved potassium iodide he injected into her udder about three pints. He used a fountain syringe for this. After this he gave her a copious injection of warm water and left her. That was about 3 o'clock. She could barely hold up her head. At 6 she was very much brighter and drank water. At 7 she drank more water and seemed almost ready to get up. After dark she got up unaided and has been all right since, although giving only enough milk yet for her calf.

The Schmidt theory is that there is some morbid action of the milk cells and in some way a poisonous substance is produced there that causes the paralysis that we call milk-fever. It is really a poisoning of the system. I do not see that the treatment can be readily applied by the unskilled or by ordinary "doctors," but in the hands of good veterinarians it seems to me it promises to be a great and valuable discovery.

Champaign Co., O.

JOSEPH E. WING.

VETERINARY LEGISLATION AT THE GOLDEN GATE.

OAKLAND, CAL., May 15th, 1899.

Editors American Veterinary Review:

DEAR SIRs:—After having read the correspondence which appeared in your May issue over the signature of Dr. A. T. Peters, I am tempted to relate our experience in legislative matters in as concise a manner as possible.

For the past ten or eleven years a few veterinarians in California have been struggling for the enactment of laws that would control the ravages of contagious and infectious diseases peculiar to our domesticated animals, and up to about six or seven months ago no apparent result was made manifest. During the past three or four years we have been endeavoring to prevail upon the State Board of Health to take an active interest in these matters with a view of obtaining later on representation on said Board. We heartily agree with Dr. Peters, that the proper way to handle these matters is through a State Board of Health composed of physicians and veterinarians. We did not hope or dream of accomplishing this at once, but thought it likely that after the State Board of Health, as it is now constituted, had a little more experience in handling diseases of animals they would realize the necessity of having veterinarians with them on the Board. Following out this idea last year we prevailed upon the State Board of Health to take some action in the premises, which they did by appointing a veterinarian to make an investigation of the condition of live-stock in the State with regard to the prevalence of contagious and infectious diseases, with a view of using the data and statistics obtained through an investigation to procure suitable legislation at the hands of our law-makers, as nothing could be accomplished under the laws existing at that time. Unfortunately for the movement, political complications had closed our State printing establishment, so little could be done towards educating our legislators on the needs of the State in this par-

ticular direction. A bill was framed, however, and introduced, giving the State Board of Health jurisdiction over all matters pertaining to veterinary sanitary science and police and empowering them to employ experts as they deemed necessary. Everything went along smoothly until all our plans were upset by the energy of one J. C. Blemer, who was and is in the employ of the Bureau of Animal Industry, employed on the Federal quarantine service. This person was and is considered by some to be, on account of his connection with the Bureau of Animal Industry, the greatest expert on matters pertaining to diseases of live-stock west of Chicago, and as a consequence had great influence with a certain class of politicians. Through his efforts a bill providing for a live-stock sanitary commission, composed of laymen who were to be empowered to appoint a State veterinarian, was introduced. This bill was dropped later on when it was learned that the Governor had stated that he would oppose any legislation providing for the appointment of a commission of any nature. Blemer and his friends then framed and had introduced a bill similar to the above with the exception that it provided for the appointment of a State veterinarian by the Governor instead of by a commission. This bill at the time of its introduction was approved by a number of stockmen who met for that purpose, notwithstanding the fact that it was the crudest affair it has ever been my lot to read. We then saw that there was practically no chance of the State Board of Health bill passing, and, deeming half a loaf better than no bread, we directed our efforts to perfecting the bill providing for the appointment of a State veterinarian by the Governor, which after a hard struggle and much lobbying we managed to substitute the most salient features of the former for the objectionable features of the latter. In fact made a pretty good bill out of it, in which shape it became a law.

We were at a loss to know the reasons which caused this man Blemer to display so much energy to obtain unscientific legislation, and wondered whether or not his superior officers in Washington approved of his actions. Later on, however, he announced himself as a candidate for the position of State veterinarian, and openly boasted that he had recommendations and endorsements for the position from Washington, and that he was going to obtain leave of absence from the B. of A. I. for a couple of years in order that he might accept the appointment of State veterinarian and start the work in this State in a proper manner. He well knew that should the State Board of Health or

any other scientific body gain control of these matters, he could not hope or dream to obtain an appointment at their hands. Hence his idea to clothe a stock commission or some other political body with the power of making the appointment.

At the present writing his chances are good to obtain his ends, notwithstanding the fact that there are a number of veterinary practitioners who have been residents of the State for many years, and who have been identified with the progress of the veterinary profession in the State, whose ability, integrity and moral character have never been questioned. These men, apparently, are entitled to less consideration than a man who is a stranger to the State, and whose ability, integrity and moral character are unknown. In fact, it looks as though this State was going to follow the precedent established by the State of Illinois in the appointment of a State veterinarian.

However, should this man secure this appointment, we shall solicit the privilege of addressing you further upon this subject matter, but until it is settled there are some things that had better be left unsaid.

I enclose a copy of the law, which is a good one except for the manner in which the executive officer is to be appointed. We should much prefer that its enforcement should be in the hands of the State Board of Health, and not in the hands of one individual, who will have full control over all matters pertaining to veterinary sanitary science and police in the State, said individual to be appointed by the Governor. We believe there are a number of practitioners in the State who are eminently fitted to handle this proposition just as well as the State Board of Health, but there is always the danger of politics controlling the position and ensuring the appointment of a man whose only qualifications are that he is a good fellow and a political manipulator, or controlled by such. Respectfully,

R. ALEXANDER ARCHIBALD.

THE ACTION OF COCAINE.

MANCHESTER, N. H., May 19, 1897.

Editors American Veterinary Review :

DEAR SIRS:—I have found several horses, among them being a bay gelding pacer, and not of a nervous temperament, on whom the anæsthetic effect of cocaine could not be produced, although the physiological effect was well marked. This particular horse was lame in the off foreleg and 25 drops of a 15 per cent. solution was injected in each side of the leg in the

usual place over the plantar nerves. Could it be possible for the nerve to be affected and still have *no* anæsthetic action whatever in the skin at any point on the leg? Is it a recognized fact that some horses are not susceptible to the action of cocaine in solution of any strength? Very truly yours,

A. F. ABBOTT.

NOTE.—Replying to our correspondent from personal experience only, we have observed the same imperfect action of cocaine of which he writes. Recently we injected a similar strength solution at the identical points he describes, and failed to induce anæsthesia of the skin, repeated prickings below the points of injection being followed by energetic manifestations of pain. In that case we concluded that if the skin could not be brought under its influence, the function of the large nerves over whose seat the injections were made, could not be materially altered. In this case, at least, we deemed the drug of no service as a diagnostic of the location of lameness. The experience of other practitioners would help to establish the true value of cocaine for such purposes, and answer the question promulgated by our correspondent as to whether certain individuals are insusceptible to its anæsthetic action.—R. R. B.

THE SCHOLARSHIPS AT THE STATE VETERINARY COLLEGE.

NEW YORK STATE VETERINARY COLLEGE,
ITHACA, N. Y., June 12, 1899.

Editors American Veterinary Review :

DEAR SIRs:—Allow me to amend your item on page 239, June issue, stating that in this college "A Scholarship in *Veterinary Science* will be open to freshmen in competitive examination." There is no special "scholarship in Veterinary Science," but 18 scholarships of an annual value of \$200 each are open to competition by all members of the freshman class in the entire University. The veterinary freshmen stand on exactly the same level in their claim upon these as do the freshmen of all other departments in the University. If they could show themselves to be the best men they might capture the whole 18. On the other hand, they might fail to secure even one.

Very truly yours,

JAMES LAW.

OUR FRIEND, Dr. W. Horace Hoskins, seems to have discovered the secret of perpetual motion in the new power, compressed air, he being president of a company for its manufacture.

SOCIETY MEETINGS.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

Place and Date of Next Meeting : New York City, September 5, 6, and 7, 1899.

Convention Hall : Large Assembly Room of the Academy of Medicine, 17 West Forty-third Street, near Fifth Avenue.

Headquarters : Hotel Manhattan, corner Forty-second Street and Madison Avenue.

Local Committee of Arrangements : Drs. H. D. Gill (chairman), Roscoe R. Bell, George H. Berns, E. B. Ackerman, and W. H. Pendry.

Location of Surgical Clinic : American Horse Exchange, Fiftieth Street and Broadway.

Pathological Exhibit : The exhibit for this year has been abandoned, as sufficient material could not be obtained to make a creditable display.

LITERARY PROGRAMME.

Sanitary Subjects.—Secretary Stewart writes under date of June 21 : "The sanitary papers to be considered at this meeting should induce every board of health in this country to send its veterinarian as a delegate to take part in the discussions, and if the matter was brought to the attention of these boards by veterinarians it is probable that many would be delegated. The following subjects will be presented : 'Municipal Meat Inspection,' 'Dairy Inspection,' 'Disinfection (person and premises),' 'Suppression of Tuberculosis.' They are all live and important problems for boards of health and live-stock sanitary commissions. The discussion on 'Municipal Meat Inspection' will be opened by Dr. E. B. Ackerman, veterinarian to the Brooklyn Board of Health. The Doctor has had several years of practical experience. Dr. John W. Adams, of the Philadelphia Board of Health, will also take part in the discussion."

Most of the subjects and essayists have already been announced in the various issues of the REVIEW, but that the extent and scope may be fully realized we recapitulate them here, with the additions furnished by the Secretary :

Dr. W. H. Dalrymple, of Louisiana, "Dietetics."

Dr. Roscoe R. Bell, of New York, "Acetanilid as an Antipyretic for the Horse."

Dr. C. C. McLean, of Pennsylvania, "Dairying from a Pure Milk Standpoint."

Dr. Wm. Herbert Lowe, of New Jersey, "Routine Manipulations and Operations."

Dr. Benjamin McInnes, of South Carolina, "Notes on *Filaria Immitis*."

Dr. Cooper Curtice, of North Carolina, "The Tick in North Carolina."

Dr. Richard P. Lyman, of Connecticut, "The Pathology and Treatment of Azoturia."

Dr. L. A. Merillat, of Illinois, "Arytenoideraphy a Practical Operation."

Dr. Charles E. Clayton, of New York, "Median Neurectomy."

Dr. S. J. J. Harger, of Pennsylvania, "Surgical Interference for the Cure of the Cribbing Habit."

Dr. Leonard Pearson, of Pennsylvania, "The Suppression of Tuberculosis in Pennsylvania."

Dr. M. H. Reynolds, of Minnesota, "Notes on the Healing Process in Ovariectomy."

Dr. E. A. A. Grange, of Michigan, "Disinfection."

Dr. Olof Schwarzkopf, of New York, "Schmidt's Treatment for Parturient Paresis."

Dr. W. Horace Hoskins, of Pennsylvania (a practical subject).

Dr. Charles Gresswell, of Colorado, "The Veterinarian in Official Life."

Dr. M. E. Knowles, of Montana, "Diseases Peculiar to the Rocky Mountain Region."

Dr. J. P. Turner, of Washington, D. C., "A Plea for a More General Use of Anæsthesia in Veterinary Surgery."

Dr. Chas. H. Higgins, of Montreal, "Chicken Cholera."

Dr. Maurice O'Connell, of Massachusetts, "Glanders in Massachusetts."

Dr. W. L. Williams, of New York (subject to be announced).

Dr. H. D. Gill, of New York (subject to be announced).

Dr. A. T. Peters, of Nebraska (subject to be announced).

Dr. J. J. Repp, of Iowa (subject to be announced.)

Even with this long list of twenty-four announced essayists, Secretary Stewart writes: "Papers have been promised conditionally by several members, which may be positively announced in your next number."

THE SURGICAL CLINICS.

It has been decided by the Committee of Arrangements that clinics will be held each morning from 8 to 10, and, as already

stated, the place for holding them will be the sales ring of the American Horse Exchange, Fiftieth Street and Broadway—but a short distance from the Hotel Manhattan and the Academy of Medicine. Operating tables and all other appliances will be at the disposal of the operators, and subjects will be provided by the committee. The committee have received assurances from the following operators that they will be on hand to demonstrate certain surgical procedures: Drs. W. L. Williams, C. E. Clayton, H. D. Gill, William Sheppard, J. E. Ryder, George H. Berns, and Wilfred Lellman, of New York; S. J. J. Harger and John W. Adams, of Pennsylvania; L. A. Merillat, of Illinois; W. Herbert Lowe, of New Jersey; and possibly Tait Butler, of Mississippi.

THE PROGRAMME OF ENTERTAINMENT.

The association will be welcomed to Gotham at the Academy of Medicine by President James L. Robertson, of the County Association.

The banquet will take place on Wednesday evening, Sept. 6, at the Hotel Manhattan.

On the afternoon of Thursday, soon after adjournment, the guests will embark upon a steamer which has already been chartered, and indulge in one of the most delightful sails which is afforded by this section, passing down through New York Harbor, amidst the beautiful scenery contributed by the banks of Long Island, Staten Island and the Jersey coast, within full view of the Brooklyn Bridge, the Statue of Liberty, Governor's Island, and past the naval fortifications at Forts Hamilton, Wadsworth, and Lafayette; past famous Coney Island, and then out to sea, arriving in due season at Rockaway Beach, where one of the far-famed Wainwright Rhode Island clam-bakes will be served, and to those who have never indulged in that luxury a revelation awaits them. Of all the local seaside resorts for which New York is noted none is better adapted for innocent enjoyment than Rockaway, and the guests will remain there a sufficient time to partake of its pleasures. The ladies will be an added attraction upon this outing, and it is hoped that a larger number will be present than ever before. The steamer will reach New York in ample time for night trains to be taken by those who may wish to leave for home on that evening.

PROGRAMME FOR ENTERTAINMENT OF THE LADIES.

While this has not been definitely decided upon, the following programme will probably be carried out:

Tuesday—Morning: Visit to the Academy of Medicine to witness the opening exercises of the convention. Afternoon: Carriage ride through Central Park and the Riverside Drive to Grant's Tomb. Evening: Resting at the hotel.

Wednesday—Morning: Visiting the large shopping districts under escort of the local committee of ladies. Afternoon: Resting. Evening: Theatre party.

Thursday—Morning: Resting. Afternoon: Excursion and clam-bake at Rockaway Beach.

RAILROAD RATES.

The railroads have granted the usual concessions of one and one-third fare for the round trip, on the certificate plan, and a time limit of twelve days, commencing Sept. 1st, and continuing to and including Sept. 12th. This arrangement will give opportunity to make short side trips in and about the great metropolis, a privilege which will be appreciated by those who rarely visit New York.

Secretary Stewart has issued a very comprehensive circular letter which has been sent to all veterinary graduates (not members) in North America and Canada. After giving a synopsis of the programme, the circular says:

The association heartily welcomes the interest and co-operation of veterinarians in all America. This includes you and you are cordially invited to attend the coming meeting.

Your attention is invited to the following reasons why veterinarians should become members of the American Veterinary Medical Association:

1st. It is an honor to belong to the highest Veterinary Medical Association in this country, and all veterinarians should have a desire to add their names to its roll; it gives them a standing that justly belongs to every good veterinarian.

2d. It is a source of education that cannot be received by any other method. We get the culture of many minds concentrated and meted out to us in a manner most helpful and which would not reach us through other channels.

3d. We should understand what will do the most good to the greatest number in our profession; by uniting we can do this; by individual action we cannot. To quote Professor Hamilton, in speaking of the Farmers' Institute, he says: "The great weakness of our country people lies in their lack of consolidation of thought upon a given question."

"When all of the country people agree upon any given subject, their desires will be gratified. Their failure lies in the lack of agreement, and the lack of agreement is usually due to a lack of accurate knowledge of the subject and its true bearing upon their industry."

This, we think, is applicable to us as a profession. While local associations are good educators, the meeting of the whole body of veterinarians can consolidate thought upon questions that are of vital

importance to us as American veterinarians, that cannot be done by local or other associations.

4th. The mercenary view—take it in a business light; will it pay? Yes, it will pay, even if you never attend any meetings. You will receive the printed proceedings of the association, and in numerous other ways receive more than your money's worth.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

(Continued from page 230.)

Dr. B. F. Kaupp, being called upon, presented the following paper on

LEUCÆMIA.

Leucocythæmia, or sometimes called leucæmia, is a disease which affects horses, cattle, hogs, and other animals, including man. Zuill says it has never been reported in a sheep or goat.

The disease is characterized by a great and permanent increase in the number of white blood corpuscles, by a diminution in the number of red blood corpuscles and by an enlargement of the lymphatic glands. The spleen is one of the organs most frequently affected. In the normal state there is found one white blood corpuscle to 350 red in nearly all warm-blooded animals. According to Zuill, in the horse and dog there is one white blood corpuscle to about 800 red. In leucocythæmia there may be one white corpuscle to 50, 25 or even 2 red. Leucæmia appears to be more common in cattle than in other animals in this section of the country.

The direct cause of this disease seems to be unknown. The primary lesions involves one of the blood-making organs, the spleen, lymphatic ganglions or red marrow of the bones. The lymphatic glands most often affected are the ganglions of the head, neck, and shoulders, of the extremities, and of the abdominal and pectoral cavities. These glands become tumefied and hypertrophied. The disease may also involve the spleen, liver, kidneys, uterus, bladder, lungs, subcutaneous connective tissue, the serous membranes, mucous membranes, etc. Leucæmia infarcts consist of a diffused infiltration of the tissue by white corpuscles, an infiltration which surrounds the blood vessels with a kind of whitish gray membrane. The new lymph-like tissues are circumscribed tumors, the histological structure somewhat resembling that of lymphatic ganglion. The spleen becomes enlarged, sometimes to enormous dimensions. The enlargement is uniform, so that the organ has practically the

normal shape. The capsule often becomes thickened. The cut surface is smooth and of grayish or brownish red color. The malpighian corpuscles are usually enlarged and prominent. The trabecular tissue of the spleen is often thickened and can be seen marking it as whitish lines. The enlargement of the spleen is mainly due to the increase of the splenic pulp. The enlarged lymphatic glands are grayish or reddish in color and sometimes mottled in appearance on the cut surface. Microscopically the enlarged glands show increase of the pulp and blocking of the lymph paths. Steel speaks of this disease occurring most often in female animals. The three cases I have had occasion to examine have occurred in cows as follows:

Case 1. August 1, 1896. Subject, an aged cow, weighing if in good condition probably 1000 pounds. The animal had an unthrifty appearance. The whole carcass when dressed presented somewhat of a jaundice condition. The liver had a light brown color and was considerably enlarged. Spleen was about five times its normal size, and when cut through the cut surface presented a brownish appearance. Malpighian corpuscles were enlarged and plainly visible; they were about the size of millet seeds and were lighter in color than the splenic pulp. Some of the lymphatic glands were enlarged and when cut through presented apparently normal gland tissue.

Case 2. Jan. 10, 1898. Subject, a seven-year-old native cow, weighing 900 pounds; color, red with white spots and in poor condition, with staring coat and unthrifty appearance. Upon post-mortem the spleen was found to be enormously enlarged, three feet long, twelve inches wide and four inches thick in the thickest portion. The malpighian corpuscles were greatly enlarged and of whitish appearance. Lymphatic glands all over the body were greatly enlarged. The bronchial lymphatic glands varied in size from a hen egg to a goose egg. Some of the glands in the pelvic region as well as the lumbar lymphatic glands and others were the size of a hen egg and larger.

Dr. S. Stewart reports a case of leucocythæmia in a cow in the January number of the AMERICAN VETERINARY REVIEW, in 1897, which case it was also my good fortune to examine. "The post-mortem examination revealed general emaciation with all of the structures and viscera presenting the usual appearance of emaciated animals, with the exception of the lymphatic glands and the spleen. The lymphatic glands in all parts of the body were greatly enlarged, varying in size from a

walnut to a goose egg and larger, and seemed upon section to consist of hypertrophied glandular tissue. The spleen which ordinarily would have weighed one and one-half pounds, weighed nineteen and one-half pounds, and measured thirty-two inches in length, nine inches in breadth, and three inches in the thickest portion. Upon section the malphigian corpuscles presented themselves as nearly whitish bodies, many of them one-third to one-half inch in diameter. The remainder of the splenic pulp was normal in color and consistence. The result of a microscopic examination of the blood showed one white blood corpuscle to twenty red." The prescapular lymphatic glands weighed three pounds apiece, the bronchial glands one and one-half pounds, and the deep iliac two pounds. Some of the superficial lymphatic glands were sufficiently enlarged to be located upon ante-mortem examination. Dr. Stewart also reports a case of leucocythæmia in a St. Bernard dog.

Dr. T. W. Carnachan, of this city, reports an interesting case in a steer as follows: "The subject of this case was a western steer, about three years of age. Nothing unusual was presented by the animal before death, but on post-mortem examination the following well-defined lesions were presented to view. The spleen was very much enlarged in all its dimensions. The length was such as to cause it to cross the abdominal cavity and then curl up, turn over past the centre of the diaphragm. It weighed almost 100 pounds. The liver was enlarged and of a very pale color, the same condition applying to the heart. All the abdominal and thoracic lymphatic glands were very much enlarged and of the same color as the heart and liver. The flesh of the carcass was of a pale hue and very flabby in consistency. The animal was much thinner in flesh than the balance of same bunch."

Dr. Carnachan also reports a case in a hog as follows: "The following case was killed in February, 1899. Not seeing the animal before death can give no ante-mortem report, but on post-mortem I noticed it being much thinner than the rest of the bunch, but not enough to pronounce it emaciated. The skin was rough over the greater part of the body, which when handled was found to be a mass of small nodular enlargements which contained pus. The skin was of a yellowish hue. The bladder was unusually large for such a small animal. The liver enlarged and of a very pale color. The spleen was much enlarged, also the abdominal and thoracic lymphatic glands, especially those of the pelvic and sublumbar regions. These

glands were as large as an egg and pale in color. The adipose tissue was thin and watery in consistency. The animal was small and not many months old."

DISCUSSION ON DR. KAUPP'S PAPER.

Dr. Sihler: I have seen quite a number of cases of leucæmia and was fortunate enough to treat a case in a dog. I want to state that I was not certain what the malady was when I was treating the case. The symptoms manifested were languor, loss of appetite, constipation and an irregular pulse. On examination I found what I thought was a tumor in the abdominal cavity. I gave a laxative, then a second dose. The next day the dog died. Upon post-mortem I found the spleen was two feet long, six inches wide and two inches thick and then I did not know exactly what I had until I began to look the matter up. It was the first case of leucæmia I had ever seen. I have seen two or three cases in calves. In several cases that I have had the opportunity of seeing, the lymphatic glands were of a dark color and varied in size from a hen's egg to a goose egg. I have seen several cases in hogs and one or two cases where the lymphatics were dark in color and the spleen very much enlarged.

Dr. Moore: Did you find any symptoms of anæmia in the dog?

Dr. Sihler: The attack seemed to come on very suddenly. Was only sick a day or two before I was called. The dog was in good flesh.

Dr. McCurdy: I saw a case in a steer that was in very good condition where this disease was diagnosed. All the lymphatics were very much enlarged, very nearly all the same size, about as large as a man's fist, and the lesions were diagnosed as those of leucæmia. This case was diagnosed as such by Dr. Adair, who has had a great deal of experience among cattle, and was confirmed by Dr. Bennett. The spleen was enlarged to about three times its usual size.

Dr. Sihler: I remember a case in a cow diagnosed ante-mortem as actinomycosis but post-mortem proved it to be leucæmia.

Dr. Heck: I have been very much interested in this paper. Before coming to the meeting I made it a point to look up the literature on this subject, but found very little in our veterinary works, more perhaps in Zuill's translation than in any other book. I had recourse to some works on human medicine, and

I was particularly struck with the classification of blood diseases in one particular work,* and thought it was worth presenting to the association. The essayist has laid no particular stress on the fact of leucæmia being a blood disease, nor has he made any classification of varieties of this disease. The human practitioner makes a distinction of several conditions, which we group together with leucæmia; therefore I note the following classification, which I think is a most excellent one:

- | | | | | |
|-----------------------|---|-----------------------|---|-----------------------|
| 1. Anæmia | { | (a) Primary anæmia | { | 1. Chlorosis. |
| | | (b) Secondary anæmia. | | 2. Pernicious anæmia. |
| 2. Leucæmia | { | Splenic-myelogenous. | | |
| | | Lymphatic. | | |
| 3. Leucocytosis. | | | | |
| 4. Hodgkin's disease. | | | | |

This classification is based purely on the condition of the blood, and is made possible only by a system of staining (Ehrlich triple stain), when an altered or diseased condition of the white and red blood cells, particularly the former, is observed. We find a peculiar blood phenomena existing in each of the outlined conditions; for instance, in pernicious anæmia we find a certain overgrown or enlarged red nucleated cell (megaloblast) which is characteristic of the trouble, while all the red cells are often enlarged.

In normal blood we find several varieties of white cells, the principal ones called polymorphonuclear neutrophiles, 60 to 70 per cent., and lymphocytes, 20 to 30 per cent. In leucæmia, we have two classes of the disease, one, the splenic, the other, the lymphatic variety. The splenic is called splenic-myelogenous, owing to a very much enlarged white cell, which Prof. Ehrlich calls a myelocyte, and it seems to be the predominating cell. The blood in the lymphatic form is filled with small lymphocytes, about the size of red cells. Leucocytosis is simply an increase in the normal white cells, and may be either physiological or pathological. Hodgkin's disease is known as pseudo-leucæmia, splenic anæmia, lymphoma, etc. We know it by the term lymphoma, and it is characterized by a general enlargement of all the lymphatic glands and sometimes the spleen. There is no perceptible increase in white cells, and it is only distinguished from leucæmia by a blood examination. Of course, the etiology of these diseases is unknown, and with your permission, I will read a short extract from the author commenting on this

* "American System of Practical Medicine," p. 633-702.

classification: "All our knowledge of the so-called blood diseases is of the most fragmentary and unsatisfactory nature, and all our statements concerning them must therefore be considered as in the highest degree provisional and open to revision as soon as new light appears. The origin of the blood and the method of its reproduction and renewal are matters worthy of speculation. We are ignorant of whether there are any diseases of the blood itself except the parasitic diseases like malaria, and whether morbid blood changes are causes or results of other organic lesions; we may doubt whether the changes both in the blood and in the (supposed) blood-making organs are not both of them due to some third factor, itself unknown. Finally the identity and individuality of the several "blood diseases" are open to considerable doubt. In a few years we may have "changed all that." Pernicious anæmia and leucæmia may be found to be only different types of a single disease. Chlorosis may be classed with the other secondary anæmias, and Hodgkin's disease may be grouped with the malignant tumors or infectious diseases. Still, we must keep to some nomenclature while a better is being evolved, and the foregoing division of morbid phenomena must serve us for the present.

Dr. Stewart: This classification is quite an interesting addition to the discussion. I noted the essayist did not enter into the blood phase of the disease or into its etiology, but only took up the gross pathological lesions as he found them. The several diseases as mentioned in this classification just quoted is likely to come to the attention of the examiner of animals. Very few veterinarians stop to make any distinction as to the form of anæmia. I could readily see how one who did not make any study of the blood phase could mistake Hodgkin's disease for leucæmia. The last speaker raised the question of the essayist not making any examination of the blood to make sure the cases were leucæmia. I wished to say that in the case the essayist cited as reported by myself an examination of the blood was made and it was found there was one white cell to 20 red ones.

Dr. Heck: I wish to beg the gentleman's pardon, if I misunderstood him, and I assure him nothing has been said to cast any reflection on his paper. He has dealt with the clinical aspect of the disease almost entirely, and I congratulate him on having seen so many cases. I simply mentioned this classification to show how much more thoroughly the subject has been gone into by human practitioners, and how far behind we seem to be. I am not sure that we find analogous conditions in our

practice, but I should be very glad if our members would make some blood counts of properly stained specimens. No one has mentioned the length of time these patients live. I will say in human subjects they seldom live longer than three or four years, the splenic-myelogenous form being much more chronic than the lymphatic variety. Persons suffering from Hodgkin's disease may live an indefinite period.

Dr. Stewart: By provision of the By-Laws the next meeting should be held in this city, but in compliment to our friends from St. Joseph, who have so generously turned out to attend this meeting, I move that when we adjourn that the By-Laws be suspended and we adjourn to meet in St. Joseph.

The motion was duly seconded and carried.

Dr. Heck spoke in regard to subscription to the various veterinary journals. He stated that all the veterinarians in St. Joseph, except two, are subscribers to these journals, a claim which cannot be made by any other city.

On motion by Dr. Forbes a vote of thanks was extended to the essayists of the evening.

It was moved and carried that a vote of thanks be extended to the Kansas City Veterinary College for the use of its rooms for this meeting.

On motion the association adjourned.

A clinic, as a new departure, was arranged for this meeting with a view to attracting more busy practitioners, and those who witnessed it pronounced it a success, and we are encouraged to continue them as a part of our programme. It does not matter how simple the operation may be we are always finding a better way to do it. By seeing our brother practitioners operate we get new ideas which can be had in no other way.

The operations performed were as follows: Neurectomy, lower operation, Dr. Moore; operation for cure of cribbing habit, excision of a portion of the sterno-thyro-hyoideus muscle and resection of the motor branch of the spinal accessory nerve supplying the sterno-maxillaris muscle, anæsthesia being produced by intravenous injection of chloroform, Dr. Moore; peroneal tenotomy for stringhalt, Dr. Simpson; cunean tenotomy for spavin lameness, Dr. Patterson; peroneal tenotomy, Dr. Steel; ovariectomy, bitch, Dr. Moore; ovariectomy, bitch, Dr. Black.

W. A. HECK, *Secretary*.

RECENT investigations have shown that dairy cattle supplying Chicago with milk show a high percentage of tuberculosis.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was called to order June 7th at the usual hour, President Robertson in the chair. Following roll-call was the reading of the minutes of the previous meeting, which were approved as read. The Executive Committee having no report, the President passed directly to the reading of papers.

Dr. Clayton read a translation from Prof. Lignière, by Adolph Eichorn, student at the A. V. C., entitled "A Contribution to the Study of Pneumonia in the Horse." * While this very instructive paper in itself did not offer much ground for discussion, it opened up a field that led into a most interesting and instructive one, which was freely indulged in by the members present and an M. D. who found himself accidentally in our midst and became extremely interested in the line of thought that was current, not only as the result of the aforesaid paper, but the one that followed by Dr. Keller on "Corns." *

Moved and seconded, that a vote of thanks be extended to Drs. Clayton and Keller for their essays. Carried.

The Committee on Legislation reported progress.

A communication was read from Prof. Liautard, in acknowledgment of the receipt of a certificate of honorary membership in the association; also from other members of the profession on association matters.

The Committee on Ways and Means (Dr. Bell, Chairman) reported that the affairs of the society were being looked after with jealous eyes.

Moved by Dr. Bell, that we adjourn to-night to meet on the first evening in September, just before the assembling of our guest, the American Veterinary Medical Association, at a special meeting, the place of meeting to be determined by the President. Seconded. Carried.

ROBERT W. ELLIS, D. V. S., *Secretary*.

NEW ENGLAND ALUMNI ASSOCIATION AMERICAN VETERINARY COLLEGE.

A meeting of the New England graduates of the American Veterinary College was held at the Copley Square Hotel, Boston, April 19, at the suggestion of the fraternity of that city, cards being sent out by Drs. Howard and LaBaw to some eighty

* Printed elsewhere in this issue of the REVIEW.

men. Sixteen were present, as follows: Drs. J. F. Winchester, Lawrence, Mass.; G. H. Bailey, L. H. Huntington, and George F. Wescott, Portland, Me.; Austin Peters, W. L. LaBaw, L. H. Howard, and A. J. Sheldon, Boston, Mass.; G. Bickell, Haverhill, Mass.; W. H. Dodge, Leominster, Mass.; J. J. Riordan, Beverly Farms, Mass.; George Stevens, White River Junction, Vt.; C. H. Tilson, Ashland, Mass.; J. H. Gardner, Norwich, Conn.; C. H. Adams, Danielson, Ct.; Madison Bunker, Newton, Mass., and J. J. Moynahan, Holyoke, Mass.

Dr. Howard was elected temporary chairman, and Dr. Peters Secretary. It was proposed by Dr. Winchester that a permanent organization be formed, which was well discussed and unanimously voted.

Dr. Howard proposed calling for nominations for President, and Dr. Winchester was elected, with Dr. Sheldon, Secretary-Treasurer.

It was unanimously agreed to incorporate under the laws of Massachusetts as "The New England Alumni Association of the American Veterinary College."

Dr. Peters then moved that the President, Secretary, and three members appointed by the President shall act as an Executive Committee. The President then appointed Drs. Bailey, Adams, and Dodge.

Dr. Gardner moved that each member attending the silver anniversary of the A. V. C. be considered an official delegate of this association. Carried.

Dr. Gardner moved that when a member of the Executive Committee found it inexpedient to attend a meeting of the association he shall delegate a proxy to serve *pro tem*.

After an hour of informal discussion, it was agreed to meet in Boston one year from date. The meeting then adjourned to a banquet, which, after many happy toasts, was concluded at about 9.30 P. M.

A. J. SHELDON, D. V. S., *Secretary*.

NEWS AND ITEMS.

DR. E. E. SAYERS, of Algona, Ia., has been elected mayor of that city.

DR. W. B. SWITZER, formerly of Williamson, N. Y., has removed to Oswego.

DR. GEORGE B. BLACKMAN, formerly of Rome, Ga., has located in Blackman, Tenn.

"I CONSIDER THE REVIEW INDISPENSIBLE. Would not be without it for double the price."—*S. D. Brown, Hamilton, Mo.*

"NO ONE practicing veterinary medicine can afford to be without your very valuable journal."—*B. F. Minich, Columbia, Pa.*

DR. GEO. W. BUTLER, of Circleville, Ohio, has been appointed Assistant Inspector in the Government Meat Inspection Service at Milwaukee.

DR. JOHN R. MOHLER, Microscopist in the Bureau of Animal Industry, has been transferred from Milwaukee to the Department at Washington.

DR. TAIT S. BUTLER, of Mississippi, has accepted an appointment in the Bureau of Animal Industry and has been assigned to duty at Indianapolis.

"I HAVE TAKEN THE REVIEW FOR 16 YEARS and would not be without it—all veterinarians will find it a complete library."—*H. D. Galbraith, Greensburg, Ind.*

AT the Iowa Swine-Breeders meeting, held at Des Moines, June 13, Prof. W. B. Niles, of Ames, read a paper entitled "Serum Treatment for the Diseases of Swine."

GEORGE G. VAN MATER, M. D., D. V. S., professor of ophthalmology at the A. V. C. and author of "Veterinary Ophthalmology," was married to Miss Lillie V. Blinn, of Brooklyn, N. Y., on June 28th.

THE "BOB VEAL" BUSINESS is doomed in New York State. Governor Roosevelt has put his signature to a bill by which dealers in bob veal not only run the risk of having their stuff seized, but liable to a fine of from \$25 to \$100.

DR. L. MCLEAN, of Brooklyn, who conducted the Brooklyn Veterinary Hospital for many years at 14 Nevins Street, has removed to Carlton Avenue, where he has purchased and enlarged the former infirmary of Thomas Robertson, M. R. C. V. S.

DR. J. H. MCNEAL, late resident surgeon of the Veterinary Department of the University of Pennsylvania, has received an appointment under the Bureau of Animal Industry and has been assigned for duty to Buffalo. He is succeeded at the University by Dr. W. W. Martin, of Philadelphia.

DR. H. L. RAMACCIOTTI, of Omaha, Neb., has been appointed veterinarian to the Greater American Exposition at Omaha for 1899. He declares that the show will be better than the one in 1898, which so many of the members of the A. V. M. A. enjoyed last fall.

ROBERT JENNINGS, JR., V. S., A SUICIDE.—In Pittsburg, Pa., this well-known veterinary surgeon ended his life on June 22d, by taking a dose of prussic acid with suicidal intent. He was to have been tried that day on a charge of having attempted to kill his wife, the provocation for which consisted in a mild upbraiding of him for intoxication.

THE AMERICAN TROTTER AT THE PARIS EXPOSITION.—There will be six classes for American trotting-bred horses at the Paris Exposition of 1900—two in the breeding rings and four in the speed department. In the latter the classification is by height instead of by previous race records, in accordance with usual French usage. Only stallions and mares are eligible.

TO FIGHT TUBERCULOSIS IN CHICAGO.—The Chicago Veterinary Society has appointed the following committee to take steps toward the passage of a city ordinance requiring some form of inspection of the dairies supplying the city with milk: Drs. H. D. Paxton, A. H. Baker, James Robertson, L. A. Merillat, Joseph Hughes, and R. G. Walker. The committee is known as the Tuberculosis Committee.

DR. WM. HERBERT LOWE has equipped the Paterson Veterinary Hospital with every modern appliance and convenience for the care and treatment of sick and disabled horses and dogs, including a veterinary ambulance complete in every detail and costing over \$1000. Besides doing the hospital service, the ambulance will be run for any practitioner in the city or surrounding country that may need such services.

ANTHRAX REPORTED TO EXIST AMONG CATTLE IN CUBA.—*Washington, June 23.*—The Department of Agriculture has been informed by prominent planters and cattlemen of Cuba of the existence of anthrax among the cattle there. With the report comes a request that all cattle shipped from Texas to the island be vaccinated. The Department of Agriculture will take no steps until it has been definitely settled whether black-leg or anthrax has broken out among the Cuban cattle.

THE MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION held its fifth annual meeting in St. Joseph, on Monday evening, June 26, when the following literary programme was announced to be carried out: "Biology of Pathogenic Micro-Organisms," by Dr. Henry J. Washburn, of St. Joseph; discussion led by Drs. John Forbes and S. E. Bennett. "Cotton-Seed Disease in Cattle," by Dr. Frank C. McCurdy, of Kansas City; discussion led by Dr. S. Stewart. "Practicability of Antiseptics in Veterinary Practice," by Dr. H. G. Patterson, of

St. Joseph ; discussion led by Dr. Sidney L. Hunter. "Gangrenous Grease," by Dr. Robert C. Moore, Kansas City ; discussion led by Dr. J. B. Black. A surgical clinic was held at 217 South Seventh Street, beginning at 10 A. M., and the literary programme was carried out in the evening.

THE AUTOMOBILE.—The Board of South Park Commissioners, of Chicago, has prohibited automobiles or motorcycles from using the boulevards and parks under its control. This action is in line with that taken by several Eastern cities. The ground of the prohibition is that horseless carriages are dangerous in that they tend to frighten horses and discourage the use of the parks by women and children. The adoption of such a rule aroused a lot of newspaper talk, and test cases have already been started in the courts. A similar rule is in force in Central Park, New York, and there is the usual protest. The status of the horseless carriage will doubtless have to be settled in the courts, but until they are brought to a state of practical perfection the question will not press for consideration. It is announced that a line of horseless cabs will soon be put in service in this city, but it is by no means certain that they will prove a success. One of the leading firms of retail merchants in Chicago tried the horseless carriage in its delivery service, but abandoned them, as they were too much trouble to maintain even as advertisements.—*Breeder's Gazette*.

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BACK NUMBERS REVIEWS WANTED AND FOR SALE.

In making up my REVIEWS to be bound I am short of the following numbers : Vol. XIII, July, September, October (1889). As I cannot obtain these from the publishers I will give the regular rates or a slight advance, or will exchange any of the following which are duplicated in my file : Vol. XIV, October (1890) ; Vol. XIX, February, March, and April (1896). Address ROBERT W. ELLIS, D. V. S., 509 W. 152d Street New York City.

AMERICAN VETERINARY REVIEW.

AUGUST, 1899.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

LAST CALL FOR THE "JUBILEE."

Before another number of this journal will reach its subscribers, the members of the various organizations slated to convene in New York City during the second week in September, will have assembled for participation in the most glorious reunion of veterinarians ever held in America. And right welcome will they be to the hospitable gates of Gotham, where there awaits them a cordial greeting, with every opportunity to partake of the intellectual and social pleasures which have been prepared for them by the various committees having charge of the arrangements.

The REVIEW but voices the united sentiment of the veterinarians of the metropolis when it says to the profession of all America, "Come, one and all, and make this sextuple event a red letter week in the history of the profession in this country."

The programme, as far as obtainable, will be found in the news department.

CONTEMPTIBLE METHODS OF PRACTICING VETERINARY MEDICINE.

It may be possible that every young science has to undergo the same annoyances which inflict that of veterinary medicine, and that our greater interest and concern for it magnifies those which are ever and anon cropping up like barnacles upon the hull of a seagoing vessel—but it does seem to us that we are

subjected to more than our share. If some special legislation is not being attempted to lower the bars for quackery, politics brings to the highest offices men who have no qualification of education, and who usually bring discredit and chagrin upon our calling. Just when everything begins to run smoothly, and we feel that all forces are conspiring for the elevation and dignification of our struggling profession, some disturbing influence arises to annoy and degrade it. While such extrinsic elements as panics, trolleys, automobiles and bicycles can be successfully combatted by the inherent character and glory of the horse, what shall we do about the intrinsic forces which put forth live stock insurance companies, "quacky" advertising, and veterinary service associations—all purporting to be promulgated by members of the profession with the qualification of diplomas? It is, of course, the pursuit of money, irrespective of the good name of the profession which unfortunately has to acknowledge them as members, that brings them into existence.

While these remarks are applicable to such conditions generally, they are called forth at this time by the appearance in New York City of a company calling itself "The Veterinary Service Association," and which seeks to make contracts with individuals and firms to furnish medical attendance to their horses, cattle and dogs for the sum of two cents per day each, guaranteeing them the services of qualified and licensed veterinary surgeons.

The following circular has been issued and distributed among animal owners in Greater New York :

The Veterinary Service Association [Incorporated.]—The purpose for which this Corporation is formed is to furnish medical attendance to horses and cattle by competent and licensed veterinary surgeons. After many months of labor, we have succeeded in gathering about us a large and efficient staff, which will be located in various districts throughout the city.

It is difficult for us to enumerate the many advantages to be derived by contracting with us, but prompt medical attendance, in time of emergency, combined with economy are in themselves sufficient to warrant you to contract with us.

This Corporation is the first and only one of its kind, and we are certain that an investigation will convince you that it is reliable in

every respect. We would impress upon our clients that there are no assessments levied, as in the defunct horse insurance companies, but for the payment of a few cents a week, we agree to furnish a veterinary surgeon whenever your horses or cattle are sick.

Our corps of surgeons are experienced medical men of the highest standing. One of them at least, has his office in your neighborhood, or in the vicinity of your stable, and is under contract with us to attend all horses and cattle in time of sickness, between the hours of 6 A. M. and 10 P. M.

If you become our client, our surgeon becomes your veterinary adviser, and it is your privilege to call upon him for advice, whether your animals are sick or not. Our medical department is under the personal supervision of Dr. Mark L. Frey, who has had a thorough collegiate training. It will be our endeavor to conduct this corporation in accordance with the most advanced scientific methods.

Our responsibility will bear the fullest investigation, and we request you to forward us your application after you have convinced yourself that we will carry out our contract with you in every detail.

Your animal, whether it be horse, cow, sheep or dog is valuable to you. You use it either for business or pleasure. You must be humane and look after its health. Animals are subject to nearly all ailments known to man, and are very sensitive to pain. Therefore it is essential that a competent veterinarian should attend it.

It is as ridiculous for horse or cattle owners to allow inexperienced stablemen to attempt to doctor their animals, as it is for a person to attempt to diagnose his own illness and ignore medical aid.

We will here illustrate one of the many advantages: Let us suppose a client stables his animal in the lower part of the city. He or his driver happens to have the horses five miles from the stable and the animal is taken suddenly sick. We furnish a card containing a complete list of the names and addresses, with telephone calls, of our veterinary surgeons. All you have to do is to send a hurry call for the nearest surgeon, and your horse will receive prompt medical attendance, without any extra fee. Were you not under contract with this Corporation you would be compelled to pay a veterinary surgeon at least \$2 for the call.

It costs you but a fraction over two cents a day for our service, whether you call upon us ten or one thousand times a year. If you used the minimum number you would be saving money. If we give you the service you contract for, it will be the best possible recommendation we can furnish, and will materially assist in increasing our clientship.

Fees.—Fifty cents for each animal upon signing application. Fifteen cents per week for each animal payable in advance. Agents are authorized to collect the application fee, but all other payments must be made to our authorized collectors, or at the office of the Corporation. Surgical operations are subject to agreement as to charges between the client and our veterinary surgeon. This Corporation receives nothing but the application fee and the weekly charges.

The following is the form of letter sent forth to various vet-

erinarians, the one herewith being an actual copy of one received by the editor of the REVIEW :

NEW YORK, July 18, 1899.

Roscoe R. Bell, D. V. S., 100 Seventh Avenue, Brooklyn, N. Y.

DEAR DOCTOR :—Will you please call on us Thursday, the 20th inst., in reference to contracting for veterinary service. We have several applications in your location, and will await your calling before completing arrangements. Should the time appointed be inconvenient, please telephone us making your own time, not later, however, than Friday of this week.

Yours truly, etc.,

THE VETERINARY SERVICE ASSN.

M. L. FREY, President.

The following reply was addressed to the Service Company :

SEVENTH AVE. AND UNION STREET,
BOROUGH OF BROOKLYN, NEW YORK CITY, }
July 21, 1899.

The Veterinary Service Association, 32 Broadway, New York City.

DEAR SIR :—I am in receipt of your letter requesting me to call at your office in reference to contracting for veterinary service with you. I beg to say in reply that I do not approve of your association, and do not believe that any veterinary surgeon with any amount of practice will need your aid in conducting his business. I shall, therefore, not only not call upon you myself, but will endeavor to prevent by argument any other veterinarian of qualification from doing so.

Very respectfully,

ROSCOE R. BELL.

Before the reception of this letter we had already read a similar one addressed to Dr. Robert W. Ellis, appointing June 29 as the date when he should call. The Doctor having business in the locality of the office of the company, 32 Broadway, called to see what it meant and found that the offices were located on the eighth floor of a large office building. It consisted of two rooms, one for the reception of visitors, the other private. The scheme of the company was unfolded to the Doctor about as follows: The company desired to enter into a five-year contract with a number of veterinarians located in various parts of the city to treat the horses of their (the company's) clients for the stated price of two dollars per horse per year. As they were to charge such clients fifteen cents per week, or \$7.80 per year, it left the company the very handsome margin of \$5.80 per horse, while the veterinarian has in all probability lost the client from his individual account. The

outer office was adorned by a rack containing the professional cards of some forty or fifty veterinarians, many of them prominent and some of them active in veterinary associations. When asked if those gentlemen were acting for the company, the answer was given in the affirmative. When reminded that associational ethics would debar them from such service, he was told that upon that point it had been ruled by a veterinarian of authority that the present instance was not parallel to the live stock insurance companies, and that no objection could be made to such a contract. Doubt being expressed of the correctness of the President's construction of the spirit of ethical law, he observed that the Doctor was in an excellent position to decide the question himself, and hoped that he would do so. He was urged to give the subject earnest thought, which he did, the result of which was the following letter :

NEW YORK, July 3, 1899.

DEAR DOCTOR :—I have not as yet had the time nor opportunity to comply with your request of 29th ult., in looking up the question as to whether it is a violation of the Code of Ethics of the several veterinary medical associations for veterinarians to contract with you or not ; but personally I am satisfied that it is entirely *unprofessional*, and upon that ground alone I would personally refrain from any connection with it.

Yours very respectfully,

ROBT. W. ELLIS.

Dr. Ellis says in a communication to the REVIEW :

" Now, if those cards are placed in that conspicuous rack at their owner's will, and if they are connected with the company, as claimed, it is a pity ; if they are there as bait only, it is a shame. If professional etiquette be left entirely out of the matter, how can a man be such an ass as to give his clients into the hands of such a concern, allowing them to collect the money for his work and paying him his wages, as the mill owner does his laborers. The circular is sent to a veterinarian's clients, and a man calls and explains that his company will treat all their stock for two cents a day, and upon inquiry they find that the very veterinarian whom they have always employed will do the work, just as he has always done, with the difference that they will not have to pay two dollars every time he enters that stable. Even that client doesn't know that the doctor is reduced to the pittance of two dollars per year. How beautifully he is playing into the hand of the service association by signing that contract, and how easily the association is foiled by his refusal to do so. No, the man who signs that contract has no practice, and thinks he can get one in that way, or if he has one he is in hopes of getting a hold upon some other man's by getting into it."

We know nothing of the personality of the promoters of the

scheme, and we care less. We do know that if it were to be successful it would be very injurious to veterinary practitioners. They would be deprived of three-fourths of their present revenue by the figures already given, and we do not believe any qualified veterinarian with a practice is willing to do that. We bring this subject prominently before the veterinarians of the Metropolitan district that none may thoughtlessly be led into any such undertaking, and with the hope that they will discountenance it in all others.

In the meantime we shall notify a number of those whose cards are displayed in the office of the company, and trust they will compel the responsible head of the company to remove them without delay.

THE FUTURE OF THE HORSE.

Editors American Veterinary Review :

DEAR SIRs :—From your special opportunities to observe the tendencies of the times, I would be glad if you would give me your opinion of the future of veterinary medicine. In other words, will it prove an enduring profession in the sense of being a source of revenue to those practicing it. Here in the West, we hear a great deal about the passing of the horse (the most profitable veterinary patient), the automobile, the bicycle and every other device to replace our old friend ; but our knowledge of it all comes through the press, as we have never seen the automobile in this part of the country. The special reason that induces me to ask this favor of you is that I have a son who is now about the right age to enter college, and he is very anxious to begin his studies this fall. I should regret to have him spend three years at college and then find out that, like Othello, his occupation was gone.

By giving me your honest opinion, you will greatly oblige,

Yours very truly,

A. B————, V. S.

We can scarcely find any fault with the anxiety of our Western correspondent, in view of the ridiculous articles with which the daily press is constantly teeming, more particularly the New York *Herald*, whose alien editor is probably a large shareholder in some of the numerous companies capitalized on paper for untold millions for the purpose of either manufacturing the

machines or selling the stock. It is passing strange that a newspaper which has in the past received so much from the horse interest of the country should not be able to find a kind word for the soliped in the last year of the nineteenth century.

But there is no more danger of the displacement of the horse than there is of the extermination of man. The world is steadily becoming more populous, and the demands of trade and travel more diversified and exacting, so that new methods are constantly being introduced to meet the requirements of ever-changing conditions. Just a few years ago such a thing as the gigantic delivery system of the great department stores was not deemed within the possibilities of human undertakings. That the fair bargain-hunter would invade one of the large Sixth Avenue stores, spend two or three hours overhauling the various departments and finally wind up her mad career by purchasing two cakes of toilet soap for six cents, and order it sent C. O. D. to some rural address ten miles distant—was formerly recited only in a spirit of jest. To record it now is but to give the history of many instances occurring daily. So that the delivery problem with such establishments has become a serious one. We are told that it costs one New York department house \$150,000 per annum to deliver their sales to their customers. It is not strange, therefore, that they are trying to curtail this branch of expenditure. But, then, this was a new use for the horse, and there are many other places which he has filled by the increasing demands of commerce. It may be that in some of these avocations he will be supplanted by mechanical appliances when they become perfected and cheaper. The horse, however, has never been threatened with extermination in his true sphere, any more than American mothers are in danger of being substituted by the incubator. As a pleasure vehicle it may be possible to pass over good roads with speed and comfort in the automobile, but when the novelty wears away it will lack the life, interest and pleasure of man's best friend.

We advise our Western correspondent, therefore, to pay no heed to the wild vaporings of the stock-kickers and sensation-

mongers, but to send his boy to the best veterinary school he may know, to thoroughly equip him for the practice of a profession whose lines are continually being enlarged and where, though spreading to all domestic animals, the horse will ever remain the typical veterinary patient.

SILVER ANNIVERSARY OF THE AMERICAN VETERINARY COLLEGE.

During the week of the "Veterinary Jubilee" in New York next month the Alumni Association of the above-named college will celebrate the twenty-fifth anniversary of the establishment of their alma mater. The record of that institution is such that her sons may well feel exultant on her attainment of the quarter-century mile-stone, and, while they will feel the keenest pride in the glory of her mature years and her splendid achievements, the profession at large may rightfully join in the celebration, for her motto has ever been "*non nobis solum*," and her grand work has thrown its influence upon veterinary education everywhere.

In this connection we reprint an editorial from the June number of the *Journal of Comparative Medicine and Veterinary Archives*:

"A. V. C. SILVER ANNIVERSARY.—The twenty-fifth anniversary of the establishment of a veterinary college in the United States is an event of no little importance in a profession the youngest of them all, and one that has moved with no uncertain steps to a recognized place among the higher vocations of man.

"The record of the American Veterinary College as a factor in higher veterinary education is a grand one, and fittingly adorns an institution that has sent forth so many worthy representatives of the profession. The chief director for many years has earned an international fame, and the school over which he has so worthily presided been accorded a recognition abroad seldom given an American medical school. Her graduates, now exceeding six hundred and more, scattered all over our own land and dotting many parts of foreign soil, have contributed much to the elevation of the profession wherever they have set foot.

"Such an occasion should recall every dutiful son of this institution to the home of his alma mater and to join in the festivities of so mo-

mentous an occasion in veterinary education in America. There will be old friendships to renew ; there will be a mingling of pleasure and gladness for all ; a reminiscent period for each one, and a comparison of college days then and now. There will be many an experience to relate, many a disappointment to tell of, many a victory to record, and there will be one more opportunity of being for a day with that grand old man whom every A. V. C. boy loves, whom every member of the American veterinary profession honors, the Dean of the American Veterinary College, Prof. A. Liautard."

ORIGINAL ARTICLES.

INVOLUNTARY SHAKING OF THE HEAD AND ITS TREATMENT BY TRIFACIAL NEURECTOMY.

BY W. L. WILLIAMS, D. V. S.,

Professor of Surgery, New York State Veterinary College.

About two years ago the writer communicated the case of a horse suffering from involuntary jerking of the head which was effectively relieved by trifacial neurectomy.

While this one case was interesting and suggestive it stood alone, so far as we know, in veterinary annals and did not furnish sufficient data to constitute a secure foundation for diagnosis, therapeutics or prognosis.

Subsequent to that date we have been fortunate enough to secure for operation three additional cases, two of which were operated upon by us, the third by student P. under our directions.

These with a goodly number of cases not operated upon furnish sufficient data to warrant us in tentatively arranging the symptoms of the affection, simplifying its diagnosis, proposing a workable technique for operating and rendering a thoroughly favorable prognosis possible.

The malady is probably a neurosis of the infraorbital portion of the super-maxillary division of the trifacial nerve and possibly chiefly or even wholly confined to those branches of the nerve which pass dorsalwards or toward the nose immediately upon emerging from the foramen.

In three of our cases the super-maxillary nerve seemed abnormally large, while in the fourth it appeared smaller than usual—about one-third the size witnessed in the other cases. No histological investigations have been attempted.

It occurs so far as observed by us in young or medium aged horses, of good breeding, well fed, very vigorous, high spirited and used lightly or moderately, usually for pleasure riding or driving.

The disease comes on insidiously, and gradually increases in severity to its maximum, when it becomes fixed and permanent. The first symptoms noted, and which constitute the entire symptomatology except increase in severity and frequency, consist of a peculiar shaking of the head as though annoyed by flies about the ears or nostrils which the patient tries to dislodge, rubbing of the upper lip and nose against available obstacles, nervousness, halting at times as though the annoyance was too great to permit of progression. It is seen but little, if any, in the stall, but shows itself while the patient is being ridden or driven. In some, if not all cases, the symptoms are more severe when the animal is driven against the wind, increased velocity of the wind or speed of the animal tending usually to increase the annoyance. Some cases appear to be worse in cold, others in warm weather.

The intensity and frequency of the jerking is variable in different patients and in the same animal at different times during the day or upon different days, but in a well established case the symptoms can in all cases observed by us be developed at will by riding or driving the animal. The motions of the head are peculiar and diagnostic, the animal gives a sudden jerk of the head, the nose being quickly thrown forward and backward and if a convenient object be present the upper lip or nose is rubbed against it as if to dislodge an insect which was causing acute, stinging pain.

If being driven double the upper lip may be rubbed against the pole, neck yoke or in a severe paroxysm the patient will halt in its gait and, turning its head toward its mate, rub its

nose so vigorously against the collar or neck of its fellow as to push it out of the road unless prevented by the driver. At times and to other observers the seat of irritation seems to be the ears or poll, the ears being moved rapidly, the head all the while being jerked up and down, and right and left. At times the patient becomes frantic and almost unmanageable.

In one case a net worn over the muzzle palliated the affection while in others it produced no effect whatever.

Physical inspection of nose, ears, mouth, teeth, and adjacent parts gives negative results, while clipping the hairs from the inner side of the external ear, extracting "wolf" teeth, filing molars and other expedients suggested or desired by owners have in our observations induced no effect.

Our treatment for the malady consists in neurectomy of the infra-orbital portion of the super-maxillary division of the tri-facial nerve.

The technique of our operation, though tentative, is workable and not difficult for any ordinary veterinarian. The instruments required consist of two scalpels, two tenaculæ, razor, scissors, aneurism needle, compression artery forceps, needles, sutures, sponges, or absorbent cotton and a piece of heavy muslin about four inches square.

The animal is prepared by the usual restriction in diet, and the operation field is to be shaved, cleansed and disinfected. The patient is secured in the lateral recumbent position, preferably upon the operating table, and complete chloroform anæsthesia induced. The halter is removed, as well as any other harness or apparatus which can in any way interfere with the operator, or injure the wound. The usual antiseptic or aseptic precautions in relation to the operation field, operator's hands, instruments, and dressing materials are applied. The levator muscle of the upper lip is pushed downwards or ventralwards, as far as practicable, and, beginning just in front or dorsalwards from the muscle, and about one-half inch above the infra-orbital foramen, an incision is extended downwards, parallel, and close to the levator muscle, for a distance of one and one-half to two

inches, dividing entirely the skin and subjacent flat facial muscles. With the aid of the tenaculæ the incision is held well open, while the surrounding parts are carefully dissected away from the nerve, exposing freely all its branches, being careful in freeing the inferior or ventral portions to not wound the facial vessels. The aneurism needle (or a probe-pointed bistoury) is insinuated beneath the nerve and its entire substance cut through immediately against the foramen, with the scalpel or bistoury. Grasping the distal end of the severed nerve with the compression forceps a piece about one inch long is dissected out and excised. The hæmorrhage is now stayed, the wound cleansed and sutured, and the square piece of muslin, well disinfected, is laid over the wound, and each corner sutured firmly to the skin with strong silk.

The patient is then rolled to the opposite side and the operation repeated on the other nerve, except that the square piece of muslin as a temporary protective is not essential and is omitted.

The patient is now permitted to recover from the anæsthesia and get up, the silk sutures holding the protective piece of muslin over the first wound are cut and removed, the wounds properly cleansed and dressed, and the animal given its freedom in a paddock, or box stall, or if necessary to tie, it should be done with a neck strap in preference to the ordinary halter, which cannot well be kept from the wounds.

After two or three days the animal may be returned to work with a properly adjusted bridle, without noseband.

We operated upon our first case without chloroform, relying upon cocaine, which totally failed us, resulting in excruciating pain, the recollection of which made the patient unmanageable for a day or two, and caused great nervousness and suffering, unfavorable conditions which are wholly avoided by the use of chloroform.

In our second case (our first under chloroform) we met with difficulties which served to render our operation incomplete and unsatisfactory. By making our incision on the ventral instead

of dorsal side of the levator muscle we wounded the facial vessels, which with the animal in the lateral recumbent position, bled freely, obscured our operation field, caused us to miss some dorsal twigs of the nerve, and predisposed the wounds to infection, owing to the resulting blood clots. By making the incision on the ventral side of the muscle, wounding the facial vessels is difficult to prevent.

The wounds were injured and infected from contact with the leathern halter which was kept on throughout the operation. The result was severe wound infection, which delayed recovery, while the missing of a part of the nerve made our results imperfect and unsatisfactory, though there was a decided amelioration of symptoms.

The last two cases operated upon according to the technique above suggested were successful from both operative and curative standpoints. With complete anæsthesia, maintained throughout, the animal shows no nervousness from recollection of pain, while the quietness of the patient aids in securing asepsis.

Operating along the dorsal rather than the ventral side of the levator muscle insures more fully the division of the dorsal branches of the nerve, and while division of the ventral parts may not be essential we believe it absolutely necessary to divide the dorsal twigs.

Our first, third and fourth cases recovered from the malady immediately and completely and the results have so far been unaffected by time.

As already stated, the third case was unsatisfactory, no doubt due to faulty operation, but even this one is distinctly improved and the betterment seems inclined to progress rather than retrograde.

We believe a second, corrected operation would cure. The operation will probably prove more free from nutritive disturbances of the enervated parts than observed after neurectomy of the feet and limbs.

Thus far no indication of unfavorable sequelæ of either nutritive, sensory or motor functions have been observed.

We, therefore, feel warranted in recording the operation as one of distinct therapeutic value and to express the hope that other veterinarians will apply the treatment and record their observations, with such suggestions as may develop in respect to etiology and technique.

THE VETERINARIAN AS A NATURALIST.

BY W. H. DALRYMPLE, M. R. C. V. S., BATON ROUGE, LA.

A Paper presented before the Louisiana Society of Naturalists at New Orleans, April 7, 1899.

It affords me a great deal of pleasure to appear before you this evening in the rôle of essayist. I must confess, however, that when asked by our worthy Secretary to prepare a paper, I had some difficulty in deciding upon a subject *apropos* to the society and to the occasion.

It is true, the veterinarian, or might I rather designate him the student of comparative medicine, is brought daily in contact with Nature in many of her phases, and is required to have a sort of conglomerate knowledge concerning her many intricacies; still, when brought face to face with the fact that a paper was expected of me—which I realized would be most acceptable to a society of this nature if along some definite line of work—I was almost about to give up in despair.

The field open to the veterinarian, in the domain of the naturalist, is indeed a very wide and varied one, but to attain to any degree of success along any of the many branches of the work, he must become a specialist. Many such men are to be found to-day in the ranks of the veterinary profession, some of whom have reached a high degree of eminence; but when we consider the large majority of veterinarians who have not the opportunity nor the time to specialize, but who have to keep adding to their store of general knowledge of all subjects pertaining to their professional work, for the purpose of satisfying the demands of a public who expect them to be quite *au fait* in each and every branch of it, the difficulty, or might I rather say,

the impossibility of pursuing any special line of study, must be apparent. It was just such difficulty that seemed to confront me in preparing a paper suitable to be read on such an occasion as this, but there was one thought from which I seemed to obtain a modicum of consolation: There used to be a saying among whist players, to the effect, that "whenever uncertain what to play, always play trumps." Being an ardent devotee of my branch of the healing art, I made the application in this way: If you are undecided as to the choice of a subject, do not lose the opportunity, but say something in behalf of your profession; there are, perhaps, more nature studies embraced by it than by almost any other, and this fact is, as yet, not fully appreciated in our Southern country. Such, then, was a part of the line of argument I advanced to myself, and by which I was led to select as the topic of my paper, the Veterinarian as a Naturalist, which I hope may be at least interesting, if not instructive. We are told by Hoblyn, in his dictionary of terms used in medicine and the collateral sciences, that a naturalist was formerly a denier of revealed truth, of any but natural religion, but now, an investigator, and often a devout one, of Nature and her laws. Placing the construction on the term, as does Hoblyn, the veterinarian ought really to take high rank as a naturalist, and in what follows, I shall endeavor, in as modest a way as possible, to give some of the reasons why.

As all of you are aware, anatomy is the foundation study of all medical work, but, first of all, it may be interesting to note the various animals which come more especially within the scope of the study of the veterinarian. Of course the common domesticated animals all belong to the vertebrate sub-kingdom, and the two classes with which he has chiefly to deal are the aves and the mammalia. As to the orders of the former—the ratitæ and the carinatae—his attention and study are directed to each. While the orders of the class, mammalia, which claim his attention, are (1) The ungulata, with its sub-orders—the perisso-dactyla and the artiodactyla. Included in the first of these being the horse, ass, mule, zebra, quagga, etc., and in the

second, ruminantia, embracing the ox, sheep, goat, camel, etc., and non-ruminantia, represented by the porcine tribe. To the (2) order of the mammalia—the carnivora—belong the cat, dog, etc.

Going back to the subject of anatomy, or zoöatomy, which means the anatomy of animals, let us for a moment glance at the subsections with which the student of comparative medicine has to be familiar. His first object may be to investigate, exclusively, the structure of a particular species; this is special anatomy. He may desire to bring under observation the structure of different species of animals, in order to trace their points of resemblance, and would then be laboring in the field of comparative anatomy. If concerned with the elementary cells and tissues of which the various organs of the body are built up, his work would be in histological anatomy. And further, if tracing up the succession of forms exhibited by the individual from the date of conception to the period of adult life, he would be making a study of developmental or embryological anatomy. And still further, were the student endeavoring to group together facts relating to structure, in order to discern the natural laws that determine the form of different parts of the body, he would be viewing the subject from a morphological standpoint. These three latter are subdivisions of special anatomy, but there are two distinct ways in which the special anatomy of an animal may be prosecuted. In the first of these, the different groups or systems of similar organs are studied separately, and in order in which one would naturally proceed had we the power to build up an animal. This is termed systematic or descriptive anatomy. By the second method the student would investigate the different structures in the order of their position in the same part of the body, such as he would find them presented in the course of a dissection. This constitutes topographical anatomy. In the first case, he would be proceeding by synthesis; in the second, by analysis, for the purpose of familiarizing himself with the structure of the animal body. So much, then, for a brief allusion to structure.

Being brought daily in contact with pathologic conditions, a knowledge of zoötony alone would avail the veterinarian but little, without an acquaintance with normal function. Hence, a knowledge of physiology is absolutely imperative. And, while human physiology is confined to the vital phenomena of man alone, comparative physiology treats, also, of the functions of animals below man, with a consideration of the means by which different functions are accomplished by different animal forms. And, it is only necessary to allude to the animals included in the orders previously mentioned, to give some idea of the extent of the knowledge required of the veterinarian on this subject.

But, although a familiarity with structure and function is of prime importance to the student, he would be poorly equipped did he not possess a knowledge of the various fuel materials, in the form of foods, to run his machine. Foods are, of course, usually dealt with under the head of physiology, but what I desire to bring out here, is, that on account of the greater number of the animals with which the veterinarian has to deal, belonging to the herbivora, and therefore bringing him in close touch with the vegetable world, the study of botany is essential to an intelligent understanding of the subject.

I fancy there is, perhaps, a tendency on the part of some of our medical colleges, both human and veterinary, to disregard this subject, or, at all events, limit it to pharmaceutical botany. There are, however, some of our American schools, and I think, the great majority of the European schools, that give quite an extended course, embracing both the phanerogamia and the cryptogamia; their morphology, physiology, classification, etc. This is another study in the curriculum of the veterinarian which opens up to him an interesting field as a naturalist. But, although his botanical information, on leaving college, may be extensive, he has, as a rule, by force of circumstances, to limit the greater part of that information to the more economic purposes for which his daily professional work calls. This would include the natural orders to which the more common food crops belong, such as: Graminiæ, leguminosæ, cruciferæ, solanacæ,

etc. Besides these he ought, of course, to be familiar with the orders to which the principal vegetable drugs belongs, as : *Atropaciæ*, *papaveraceæ*, *scrofularaceæ*, *liliaceæ*, *ranunculaceæ*, etc. And he ought to be able, from his knowledge of the subject, to recognize noxious and toxic plants which are either known, or supposed to be injurious to the domestic animals. And, in addition to these, his knowledge should extend to a familiarity with the various parasitic and saprophytic vegetable fungi from which the higher orders of plants suffer, and in consequence are depreciated in nutritive value, as well as sometimes rendered dangerous to the health of animals.

So far, then, I have touched briefly upon anatomy and physiology, and incidentally upon botany, but when we come to the subject of pathology, the field again broadens out, since living organisms, in the form of pathogenic bacteria, have been found as the result of patient scientific investigation, to be the chief causative factors in disease. Not only, then, is it necessary for the student of comparative medicine to have a knowledge of the structure and functions of the larger and higher forms of both animal and plant life, but it is imperative, in this age of scientific advancement, that he be familiar, also, with the morphology and physiology of those minute forms which have been found to be responsible for so much destruction to both life and property. If I might be allowed a slight digression at this point, I would like to add, that the close relationship existing between the work of the veterinarian, along bacteriological lines, and the public health, is not, perhaps sufficiently known to be fully appreciated, more especially in the Southern States. In sections of our own country more advanced in the knowledge of this subject, and in European countries, the veterinary profession of to-day is looked upon as an indispensable factor in the conservation of the public health, as well as that immense item of public wealth which is represented by "the cattle upon a thousand hills." It is, however, the knowledge which the modern veterinarian is required to possess relative to diseases of bacterial origin in the lower animals, and which are communicable to the

human family, that I desire to emphasize; and also, of the changes brought about by pathogenic bacteria in the meat and milk supply of our people, which render both inimical as articles of human food.

Included in the study of the morphology and physiology of these schizomycetes, is, of course, their composition, form, movement, peculiarities of reproduction, the phenomena of respiration and nutrition, the circumstances affecting their growth: such as the nature of the soil, temperature, gases, light, etc.; and a very important part of the knowledge required regarding the pathogenic forms, is a familiarity with their chemical products, or the products of the metabolism induced by them, which may be classified as: (1) ptomaines or alkaloids; (2) albumoses or tox-albumins; and (3) enzymes. The first two being directly poisons; the third harmless, except in the presence of proteids, which they are said to be capable of transforming into poisonous albumoses.

Pathology, so far as studying it in these microscopic death-dealers, for the purpose of revivifying and reinstating them in a condition of health and vigor, is, of course, out of the question. Our main object is their destruction; and for this purpose various methods and agents are adopted, which it is unnecessary to mention on this occasion; but I might allude, just in a word, to the fact, that in many instances these very pathogenic organisms have been and are being utilized for the production of a therapeutic agent peculiar to each—by which the disease, of which they are the specific cause, can be prevented and often cured. These are the anti-toxins and vaccines; and we are all more or less familiar with records concerning vaccination in small-pox, and serum-therapy in diphtheria, tetanus, and some other hitherto most fatal ailments.

The word *germ*, in the ordinary acceptation of the term, seems always to carry with it the stigma of disease, but we must not forget, that, although the pathogenic forms are both plentiful and ubiquitous, to a large extent, there are immense numbers of bacteria that are harmless, and many that are really of commer-

cial or economic value. Our plants receive their nourishment through their agency; our butter is flavored by them; the ripening of the cream to make our butter, and the ripening of our cheese are all phenomena brought about by fermentation, the work of micro-organismal life, and so on. The study of bacteria, then, in which there is a life-work for the naturalist, is also embraced in the educational curriculum of the veterinarian; but in this, as in other branches of work, to become thoroughly informed, he must specialize, and this is not convenient in every case. Bacteriology, however, is one of, if not the most important branch of medical science, and is just as valuable and necessary in its application to veterinary sanitary science, as it is in its relation to health and disease amongst the human family.

But, besides the requirements of a familiarity with this most important group of parasites belonging to the vegetable kingdom (phytoparasites), there are three sections of the animal kingdom containing parasites (zoöparasites) of the domestic animals, some of which, from a pathologic standpoint, may be considered of almost equal importance, for the reason that some of the members of at least one of the sections, in certain stages of their life-history, are not only pathogenic in the lower animals, but in the human family also. I refer to the protozoa, the entozoa, and arthropodes. Here, again, we have a study which furnishes an abundance of material for the naturalist along special lines.

When touching upon the subject of botany, I made general allusion to parasitic vegetable fungi. I might here make special of one or two groups with which we come in contact in the study and practice of comparative pathology, viz.:

(1) The dermatophytes, as the *trichophyton tonsurans*, and the *achorion schonleini*, which live on the skin; the former producing *tænia tonsurans*, or common ringworm, the latter, *favus* or honeycomb ringworm.

(2) The saccharomycetes, as the *odidium albicans*, which infest the upper portions of the digestive canal, and produce what is known as parasitic stomatitis; also the saccharomycetes gut-

tulatus, sometimes found in the digestive canal of various herbivora.

(3) The haplococcus reticulatus, a parasite of the muscular tissues of the hog, and

(4) Several kinds of aspergillus, "moulds," belonging to the perisporiacæ, which may develop in the air-passages of birds and of some mammals. There are of course, others, but the above will suffice, as we have not the time for more than passing reference.

Of the protozoa, only three classes contain parasites of the domesticated animals. These are the amoeba, sporozoa, and infusoria. Of the first of these is the "amoeba parasitica," which has been discovered in ulcers in the lips and feet of sheep. The coccidia and the sarcosporidiæ, belonging to the psorospermia, are the principal representatives of the sporozoa affecting the work of the veterinarian. The coccidiæ chiefly infest the digestive canal; the sarcosporidiæ being found exclusively in muscular tissue.

The infusoria found in the domestic animals, and observed more particularly in the alimentary tract or its accessories, belong to the sub-class flagellata or ciliata. We have also the "pyrosoma bigeminum" of tick fever which is a protozoon.

The second section of the zoöparasites requiring our attention: the entozoa, vermes, or helminths, is made up of an immense collection, and are usually divided into two classes, viz.: the plathelminths, with bodies generally flat; and the nemathelminths, whose bodies are nearly cylindrical.

The plathelminths comprise the following three orders: Cestodes, trematodes, and turbellaries. The first two, however, are limited to a parasitic existence. To the first of these belong the tæniæ or tapes, and their life-histories form an interesting study from the standpoint of the naturalist as well as that of the pathologist. In the adult stage they exist in the intestines of the higher animals, but in the immature stages they undergo a certain number of metamorphoses and migrations, which are often brought about in the most diverse organs of different hosts.

It may be of interest to note a few of the tapes of the various domestic animals; and it may be stated, that although a number of these plathelminths are known in the adult stage to be peculiar to different animals. this is not the case, in every instance, with regard to their cystic or hydatid form.

In the alimentary canal of the equidæ, three species of *tænia* have been observed, but, so far, nothing whatever is known of their cystic form. These are; The *tænia plicata*, the *tænia mamillana*, and the *tænia perfoliata*.

Cattle, also, have three species, and like those of the equidæ, they are entirely unknown in their cystic form. They are the *tænia alba*, the *tænia expansa*, and the *tænia denticulata*.

It is said, that, after the dog, the sheep most frequently harbors the greatest number of *tæniæ* in its intestines. Those of this ruminant belong to eight distinct species, all of their cystic forms being unknown. They are as follows: The *tænia expansa* and the *tænia alba*, both of which are common to the ox and sheep. The *tænia fimbriata*, the *tænia benedeni*, the *tænia vogti*, *tænia ovilla*, *tænia centripunctata*, and *tænia globipunctata*.

It seems rather wonderful to remark, that although the hog harbors a large number of intestinal parasites, up to the present, according to Neumann, no adult form of cestode has been observed in it.

When we come to the dog, however, it is said of him that he is the favorite host of tape worms; eight species being put down as his share, and of which the greater number of the cystic forms *are* known. The *tænia serrata* has its cystic form in the *cysticercus pisiformis*, frequently found in the peritoneal cavity of hares, and also domestic, or wild rabbits. The *tænia marginata*, whose cystic form is the *cysticercus tenuicollis*, found in the peritoneal, and occasionally in the pleural cavity, more especially of domestic ruminants. The *tænia echinococcus*, cystic form the *echinonococcus veterinorum*, found in most of the organs of the herbivora, and even in man, but more frequently observed in the liver and lungs of ruminants and the hog. The

tænia cucumerina or *tænia canina*, whose cystic form was for long unknown until it was discovered in 1869, in the body of the dog-louse, the "*trichodectes latus*." The *tænia litterata*, the cystic form of which, I believe, is unknown. And, the *tænia coenurus*, whose hydatid form is developed in the cerebro-spinal cavity of the sheep.

The digestive canal of the cat affords asylum to three species of *tænia*: The *tænia crassicollis*, cystic form the *cysticercus fasciolaris*, found in the liver of mice, and of various kinds of rats. The *tænia elliptica* and the *tænia litterata*, the latter being confounded with the *tænia* of the dog bearing that name.

These may be said to be the principal *tæniæ* found in the domestic animals, in the adult stage, but, as some hydatid forms, found in the muscles of our meat animals, develop into mature tapes in the human being, through the consumption of what is known as "measly flesh," it may be interesting, as well as instructive, from a public health standpoint, to allude to two *tæniæ* which infest man. These are the *tænia solium*, and the *tænia mediocanellata* or *saginata*. The cystic stage of the former of these parasites of man is the *cysticercus cellulosæ*, and is found in this form imbedded in the muscular tissues of the hog, and when this article of food is imperfectly cooked, or, at least, not sufficiently so to destroy the hydatid, the latter develops, in the human digestive canal, into the mature tape, the *tænia solium*. The second, the *tænia mediocanellata* or *tænia saganata*, of the human family, has its cystic form, the *cysticercus bovis*, in the flesh of the ox tribe; and when this is partaken of in a somewhat rare condition, with the hydatids remaining possessed of vitality, *tæniasis* is produced, as in the former mentioned case. This fact ought to give emphasis to the urgent necessity for careful meat inspection by properly qualified individuals.

As the study of the entozoa is one of interest to the naturalist, may be pardoned for pursuing the subject a little further.

The second variety of the plathelminths are the trematodes; and those of chief importance to the veterinarian belong to the

sub-order, distomata. The principal species of distomes of the domestic animals infest the liver, and the hepatic form is, therefore, the most important, the first place being taken by the *distoma hepaticum*; the *distoma lanceolatum*, perhaps, taking a secondary position. The former species is pre-eminently a parasite of ruminants, and, as the name would indicate, is most frequently found in the bile ducts. The *lanceolatum* is often observed along with the *hepaticum* in ruminating animals, but it has also been observed in the rabbit, hare, pig, ass, dog, cat, and man. We have also the *distoma texanicum*, found in Texas cattle, and described by the veterinarian of the Texas Experiment Station, Dr. Francis, a year or two ago. The life-history of these parasites is extremely interesting, but time will hardly permit of our taking it up at present.

Coming now to the second class, under the head of entozoa, we have the nemathelminths or round worms, which comprise two orders. These are the *acanthocephali* and the *nematodes*. The former include only the *echinorhyncus*, which in the adult stage lives in the digestive canal of vertebrates; but the latter are numerous, and are found in all the organs of the domestic animals, with the exception of the bones and the nervous system. The following are some of the principal nematodes of the various domesticated animals: In the horse, we have the *oxyuris curvula*, found in the cæcum and colon. The *ascaris megalocephala*, probably the most common internal parasite of the horse. The *spiroptera megastoma*, found encysted in tumors in the walls of the stomach. The *strongylus armatus*, found in the blood-vessels, sometimes in the heart, but chiefly in the anterior mesenteric artery. The *sclerostoma tetracanthum*, found in the cæcum and colon. The *eustrongylus gigas*, found in the bladder, kidneys, and tissues of the perineal region. The *filaria lachrymalis*, found in the lachrymal duct. And, *filaria papillosa*, found in various locations in the body, and occasionally occupying the anterior chamber of the eye.

Among the nematodes of the ox, we find the following: The *ascaris lumbricoides*, in the small intestine. The *strongylus*

radiatus, ventricosus, and inflatus, in the stomach and intestines. The strongylus micrurus, in the trachea and bronchi. The eu-strongylus gigas, filaria lachrymalis and papillosa, common also to the horse. And, spiroptera scutata œsophagea bovis, found in the œsophagus. This has been given a new genus by Stiles of the Bureau of Animal Industry, viz.: Myzomimus, and the parasite, the myzomimus scutata.

The sheep also harbors a number of round worms, the most common being the strongylus filaria, in the trachea, bronchial tubes, and parenchyma of the lung. The strongylus contortus, found in the abomasum. The strongylus filicollis and dochmius hypostomus, in the intestines. And, tricocephalus affinis, in the cæcum, and sometimes in other portions of the intestines.

The pig or hog, is the host of the following parasites of this class: The ascaris lumbricoides, sometimes named the ascaris suilla, found in the intestines. The tricocephalus crenatus, also in the intestines. The spiroptera strongylina, in the walls of the stomach. The stephanurus dentatus, in the adipose tissue round the kidney. The sclerostomum dentatum and the echinorhyncus gigas, in the small intestines. The strongylus paradoxus, in the lungs. And, the trichina spiralis, imbedded in the muscles. This nematode, although one of the smallest of the intestinal parasites, requires more than merely a passing notice, as it is responsible for the disease in the human being known as trichinosis, trichiniasis, or "flesh-worm-disease." it exists in two distinct forms, viz.: the partially developed or encysted, and the fully developed or intestinal. The following is a short history of the trichina: In a partially developed state it is found encysted in the muscles of the hog. Here it is sexually immature, but when the human subject partakes of the flesh imperfectly cooked, in the stomach the cyst wall is ruptured, the embryo escapes, and in 48 hours it becomes sexually mature. Coition takes place, and in about 8 days after entering the stomach, young are born viviparously, they commence to migrate, entering the muscular tissues of the abdomen chiefly, and there become encysted. During migration they cause an

amount of disturbance which is sometimes fatal in the human subject.

The following nematodes are found in the digestive canal of the dog: The *ascaris marginata*, *spiroptera sanguinolenta*, *tricocephalus affinis*, *tricocephalus depressiusculus*, and *dochmius trigonocephalus*. The *tricosoma plica*, is found in the bladder. The *filaria immitis*, in the heart and blood-vessels. And, the *filaria trispinulosa*, in the capsule of the crystalline lens.

I have not alluded to the intestinal parasites of poultry, but I might just mention that something like 10 species of cestodes, 7 trematodes, and about 10 nematodes have been described.

The third section, or arthropodes, I will merely touch upon, as I have already occupied too much time. Of the four classes: crustacea, arachnidæ, myriapodes, and insects, the arachnidæ and insects alone contain species which are parasitic in the domestic animals. I cannot afford to go further into this section, as it would only lead me deeper into a subject, with which, although of intense interest from a natural history standpoint, I have already taken up considerable time.

I must confess, Mr. President, that when I commenced this paper I felt extremely doubtful as to my ability to put enough into it to occupy more than ten or fifteen minutes reading, but the subject is so comprehensive and expansive, that as I became more interested in it, there seemed to be much more difficulty in knowing just when to stop, than what more to say. There is a great deal more that could be said, however, but I must now draw to a close. I must repeat what I said at the commencement: that the veterinarian, as a rule, has rarely an opportunity to specialize. The calls upon his services are of such a general and diverse character, that he has to be "all things to all men," so to speak. He may be asked one minute to prescribe for a dyspeptic cat, the pride and joy of some fastidious old maid; the next, to investigate, control, and eradicate an epizootic of some contagious disease, and the next, perhaps, to perform some delicate piece of ocular or laryngeal surgery. To

meet such varied demands, he is compelled, however, to keep abreast of what is going on in the numerous branches of modern medicine and surgery. And, beside studying the nature of the animals with which he has to deal, he will, if he is wise, make a more or less careful study of human nature as well, for it is frequently the case that the owner is much more difficult to treat than is his animal.

I trust the society will overlook any seeming tendency to veterinary professionalism on my part, in the "make up" of this paper. To convey such an impression is the farthest from my intention. What I desire, is, simply to show, that with a curriculum of study made up of such subjects as those to which I have made brief allusion, and a great many more which I have not mentioned, if the modern graduate, from our most reputable veterinary schools, is not *somewhat* of a naturalist, I think you will agree with me, that he, at least, *ought* to be.

PUERPERAL SEPTICÆMIA.

(MILK FEVER—PARTURIENT APOPLEXY.)

BY F. L. STEVENS, B. S., V. S., MAINE.

A Paper read before the Maine Veterinary Medical Association, October 13, 1898.

There is probably no disease in the whole range of veterinary practice, especially among rural practitioners, which is so important and which gives the veterinarian so little satisfaction in its treatment as the one before us for consideration at this time. Entailing as it does upon the dairyman the loss of the most valuable animals, and the almost helpless condition of the veterinarian when called to attend such cases, make it a disease alike dreaded by the stockman and the veterinary practitioner.

I have used the term "Puerperal Septicæmia" because I believe it expresses the pathological condition in this disease better than such expressions as milk fever, parturient fever, puerperal eclampsia, parturient apoplexy, etc. Such terms are misleading and only tend to confuse, simply expressing different forms or stages of the same disease.

Nearly every intelligent veterinarian has his own theory as to its pathology; but the utter lack of reliable and controllable therapeutics which will save anything more than a very small percentage of cases would indicate that its true etiology and therapeutics are really as little known as that of azoturia.

I have read with much interest the various articles which have appeared upon this subject, from time to time, in our veterinary periodicals, and it would appear from them and the literature upon the subject that there has been, and is at the present time, a great diversity of opinion as to its pathology and therapeutics. Without presuming to offer anything new to the profession upon this subject, but rather for the purpose of bringing it before you for intelligent discussion—a free expression of the opinion and the experience of the members of this association upon so important a matter—is the purpose of this paper.

The various theories as to the etiology and pathology of this disease are probably familiar to you all. Among the older theories may be mentioned that of Harnes, according to which this disease was caused by the introduction of air into the blood vessels at the time of parturition, this producing progressive cerebral anæmia and paresis. This theory being unable to withstand scientific criticism is now generally abandoned. The still older theories of Bentele and Born explained the phenomena of milk fever as a lacteal metastasis. They are said to have observed in some instances milky urine from the kidneys, milky peritoneal contents and lactiform nasal discharges, but these lesions were undoubtedly, as Friedberger and Fröhner remark, due to metastatic nephritis, peritonitis or to pneumonia occurring during the course of pyæmia. According to Franck's theory, this disease essentially consists of cerebral congestion followed by an encephalic œdema and anæmia, which is brought about by a too abrupt contraction of the uterus, and produces a general nervous depression and paralytic symptoms.

This theory withstood the scientific criticism for years, and

was generally accepted throughout Europe. It has, however, recently been successfully combatted by Schmidt and Muhlheim, who in place of Franck's theory believe that the paralytic form of vitulary fever is due to a poisoning by an absorption into the system of various ptomaines similar to the poisoning which sometimes occurs in man through the consumption of certain meats and sausages—a condition known as *botulism*. It is the assumption of these authorities that septic intoxication takes place through the uterus, and that the ptomaines resulting from the rapid multiplication of the septic microbes in the lochia of the occluded uterus, is the exciting cause of this fatal disease.

This I believe to be the true etiology of the so-called milk-fever, parturient apoplexy, puerperal paresis, parturient eclampsia or whatever name may be employed to express the conditions under consideration. It is evident, however, that if this hypothesis as to its etiology is correct, that the more correct and expressive term is puerperal septicæmia and I believe that as its pathology becomes better understood this term will commend itself to all.

Septicæmia is defined in a general way as the pathological condition which follows the penetration of putrid matters into the system. Now, as putrefaction is a complex fermentation which takes place only through the intervention of microbes, it is evident that septicæmia cannot exist, unless artificially produced, without the presence in the system of microbes producing ptomaines or toxines resulting from their proliferation.

The microbes which give rise to septicæmia are various, and, according to the work on microbiology by Mosselmann and Lienaux, the pyogenic germs can also give rise to septicæmia. According to the above authority, the streptococcus pyogenes aureus is the cause of puerperal fever, also the staphylococcus pyogenes aureus has been found in the blood in several cases of septicæmia. In such cases the virulence of these germs is very great and death follows too quickly to allow the formation of pus.

We thus see puerperal fever under three distinct forms in which the streptococcus is always found. It sometimes takes the form of a true septicæmia, quickly leading to death. At other times the patient succumbs with an abscess of the large ligaments and generalization of streptococcus without occasioning new abscesses, and finally the disease sometimes evolves comparatively slowly, assuming the character of pyæmia, with multiple streptococcus abscesses.

That the genital tract, and especially the uterus, immediately after parturition, forms an excellent location for the multiplication of the microbes of putrefaction is self-evident and needs no argument. Fröhner and Friedberger in their excellent work have covered the whole ground, but there is one important fact which I have observed in each of the three cases that I have carefully examined during the past few months and which I do not see mentioned by any of the works on the subject, or if mentioned no stress is laid upon the point. I refer to the fact that while the uterus is not usually contracted, and the os not always closed tightly, yet in every case of puerperal septicæmia that I have examined the os uteri was absolutely occluded by a gelatinous exudate which required considerable labor to remove before an entrance to the womb could be effected.

Now, as most of the germs producing septicæmia are anaerobic, especially the streptococcus pyogenes aureus, which according to Mosselmann and Lienaux is the microbe producing puerperal septicæmia and cannot multiply in the presence of oxygen this would appear to be a condition absolutely essential to the production of puerperal septicæmia.

Without this occlusion of the os it might be urged that the uterus could not be the seat of septic infection or intoxication from the fact that the microbe producing it, being anaerobic, could not exist and undergo proliferation under such conditions. Whether this occlusion of the os is constant in cases of this kind, I am unable to say, but, so far as I have observed, this condition is always present.

Etiology.—The exciting cause of the disease then, we must regard as the entrance and proliferation of the septic germ into the uterus or uterine passages and the absorption therefrom of the resultant toxins or ptomaines. The various conditions, such as heavy milkers, plethora, mature age, season, etc., can only be regarded as accessory or predisposing causes.

Pathological Anatomy.—We find the blood usually dark in color and coagulates with difficulty. We find, unless the course of the disease has been extremely rapid, ulcerations and dark spots upon the mucous membrane of the vagina, the os uteri and the uterus; small extravasations of blood beneath the pericardium; the mucous membrane of the digestive canal usually congested; the uterus not contracted and soft and flabby; the os, if not contracted, firmly closed by a gelatinous exudate. The uterus usually contains decomposing organic matter and the mucous membrane is in some varieties of the disease of a dirty brown or greenish black color, covered with ulcerations and coated with an ichorous or fœtid pus. The lymphatic vessels and the thrombosed veins are filled with pus. The viscera are usually filled with venous blood due to enfeebled cardiac action. If the disease is of several days' duration the peritoneal coating of the uterus, the pelvis and sometimes the whole peritoneum show lesions of serous, purulent or putrid inflammation.

Symptoms.—These are unmistakable. Rumination ceases, there is paddling with the hind feet, secretion of milk ceases. There is contraction of the abdominal walls, the animal makes violent expulsive efforts, arches the tail, stamps, there is paralysis of the posterior limbs and later decubitus, rapid respiration, elevated temperature, except in the apoplectic form, when the temperature is usually below normal. Pulse varies from 80° to 120° per minute; there is a tendency for the head to rest upon the flank or side, due to the tonic contraction of the cervical muscles. Muzzle sometimes moist and at other times dry. Bowels torpid or constipated, retention of urine.

The severity of these symptoms depends upon the amount

of the toxins absorbed from the seat of the infection, and the resistance offered by the animal organism to the poison.

Treatment.—Basing our treatment upon the foregoing etiology and pathology, the indications are to immediately open the os uteri and thoroughly clean out the uterus, removing the gelatinous exudate and decomposing animal matter. This allows the introduction of air into the womb and interferes with the proliferation of the anaerobic microbes and the consequent further production and absorption of the ptomaines. The uterus should then be thoroughly washed out with a five per cent. solution of creolin or a one per cent. solution of cresylic acid. These agents are non-irritant and non-poisonous and are much to be preferred to the poisonous corrosive sublimate or carbolic solution. Support the animal on the sternum with bundles of straw with the head in an upright position if possible. If deglutition is not impossible give a cathartic of aloes and calomel in bolus. If the muscles of deglutition are paralyzed so as to render a bolus unsafe use eserine. Relieve the bowels with copious warm water injections to which has been added a few ounces of glycerine. Draw the urine.

In the earlier stages I find that aconite $\frac{3}{4}$ ss, fl. ext. belladonna $\frac{3}{4}$ i and alcohol $\frac{3}{4}$ iiss, giving two teaspoonfuls of this mixture every hour for four or five hours, works well. Then shove stimulants, and in my experience nothing works better than whiskey, and I believe this should be pushed nearly to the point of producing intoxication in the patient.

During the past summer I have treated three cases, using the treatment outlined above. Two of these resulted in recovery and the other cow, in which case I gave a rather doubtful prognosis to the owner, was converted into beef, and, against my protest, shipped to the Brighton markets for consumption; the owner preferring to realize something on his animal to the risk of suffering a total loss.

I am aware, gentlemen, that there is another theory as to the seat of infection in this disease and a new treatment based upon this theory is claiming the attention of veterinarians

throughout the world. I refer to the recent theory of Veterinarian Schmidt of Kolding, who claims that the cause of the disease is located in the udder, which by the sudden increase of lactation after birth loosens large masses of glandular cells or colostrum and these undergo a decomposition and form toxines and being absorbed into the circulation result in auto-intoxication. Basing his therapy upon this theory, he directs his treatment to the udder and endeavors to lessen the abnormally high milk secretion. His treatment is said to be followed by the most gratifying results; 46 out of 50 cases so treated are said to have recovered.

When I read the admirable article of Olof Schwarzkopf upon this new treatment which he read before the last meeting of the New York State Veterinary Society, I was struck by his remark: "True, there are practitioners who believe they have found a 'sure cure,' but sooner or later they will find, as we all have found, that at one time we may be quite lucky with a certain kind of treatment, while the second or third time we may be decidedly unlucky."

As you are all probably familiar with the article above mentioned and the details of the new treatment therein given, you will probably watch with much interest, as I am sure I shall, the results obtained from its use. Not having had an opportunity as yet to try the new treatment I am not in a position to criticise it or express an opinion as to its efficiency.

SERUM AS A REMEDY FOR HOG CHOLERA.

BY J. D. SPRAGUE, V. S., DAVID CITY, NEBR.

A Paper read before the Nebraska Veterinary Medical Association, February 21, 1899.

Since the introduction of the use of blood serum as a therapeutical agent, and particularly since Dr. A. T. Peters applied it in the treatment of hog cholera, stock raisers and veterinarians have looked forward with much interest to the merits or demerits of the system.

No doubt this is of much less interest to the city veteri-

narian ; but to us who are located in the country districts this disease has been the source of much annoyance. It is very embarrassing to be approached by a client relating his experience and describing minutely the symptoms of so common a disease, or, what is more common to have him say, " My hogs have cholera," or, " My cattle are dying in the stalks," and asking you for advice in preventing further loss. I say it is very embarrassing indeed in such a case to try to content yourself or satisfy your client by telling him this disease is due to a living organism, a microbe, germ, etc., or that the cause is not definitely known, and the only relief to be obtained is for him to change his herd to another pasture, separate the healthy from the infected animals, disinfect the pens, etc., and as a last resort throw them on the market at whatever they will bring.

You are beaten out of your visit, your counsel is given without compensation, for you consider it of little value, and the farmer returns to his scene of trouble, brooding over his misfortunes, and wondering what the veterinary profession is anyway, if they are so ignorant as to know nothing of such diseases, or if so indifferent as to give it no investigation, in many cases making up his mind that where he can best use the veterinarian is where he can get along without him.

I have often heard it said that cholera only furnished the market for the surplus hogs and that a cure or prevention of the disease would be detrimental rather than beneficial to the hog raiser, on the theory that it would reduce the market price. But no doubt the price in this case would be regulated just as it is with all other products. We all know that the greatest drawback to hog raising is the uncertainty of getting the animals to market, and anything that will relieve this uncertainty would naturally be a great benefit. And as for the profession, how much better would it be if in such cases we could say, " yes, we recognize the trouble and by the application of such and such treatment we may be able to prevent further spread of the disease and perhaps cure a certain per cent. of the infected animals and thereby reduce the loss to a minimum." He not only pays

your bill and looks pleasant, but it also raises you in his estimation and likewise convinces him of the fact that the men following the profession are worthy of the name.

And while there may be but little or no financial returns directly in the treatment of the hogs, yet I am quite sure that most any country practitioner can well afford to treat the hogs as well as the other animals.

It is not my intention to theorize upon the curative properties of hog cholera antitoxin from a scientific standpoint, that is, whether or not its action is due to ptomaines, leucomaines or to some peculiar action of the phagocytes; or what action it has upon the blood of the animal treated, to render it immune. For bacteriologists alone are capable of dealing with such questions and they know little enough about this particular one.

But what interests us most is, will the use of serum in hog cholera be practical? And what little I say along this line will be from observations made in the use of it during the last two years. I will roughly review my use of it in the different herds:

Lot I. 100 head free from disease at the time of inoculation and remained so, but as we never knew of their being exposed to the infection it furnished no evidence of the efficiency of the remedy.

Lot II. 20 head free from the disease at the time of treatment were placed in infected pens. All remained well for two months, when one died after a few days illness.

Lot III. 30 head healthy hogs treated and in ten days placed in pens where owner had lost all of his hogs three months prior. All remained healthy.

Lot IV. Badly infected herd of 80 head; treated 40 and separated them from the balance of the herd; 10 of the treated and 25 of those not treated died.

Lot V. 45 head of pigs generally infected, but unknown to the owner, were placed in pens with 55 healthy hogs. In 5 days 2 of the 45 head died and most of the others with 2 of the 55 head showed plainly symptoms of cholera. These were removed to

another pen and the entire 98 head treated with serum. None died until the third day after treatment, when those of the infected lot began dying, the disease taking its regular course. This continued for several days, when I gave the infected ones another injection of serum. None died until the third day after the second injection, when they again began dying. I then repeated the inoculation, which seemed to check the disease again for three days, when they began dying and continued until the entire 45 with 2 of the 55 were dead. The 53 remained perfectly healthy. About 10 days after the first treatment, one of the healthy animals which had become slightly crippled in some way was placed with the sick ones. This remained well, and after the sick ones had all died it was replaced with the original bunch.

Lot VI. Treated 60 head in feed lot containing about 150 head. A few were dying with symptoms of cholera. Very few of the treated animals died, but owing to many of the original hogs being taken out and replaced by others the per cent. could not be obtained.

Lot VII. 18 head that were left of a bunch of about 50, the others having died of cholera. These were each given one dose of serum. The second day about one-half of them were given a second dose; the third day those presenting the worst symptoms were again treated and on the fourth day the same. None died until about one week after treatment. At this time some of them showed symptoms of being worse and 4 died, 14 making a nice recovery.

You will notice that in some cases I have been repeating the doses. In the next experiment, Lot 8, I have taken extra care to ascertain if there is any benefit in so doing; selected subjects in which the symptoms were well marked from an infected herd. These were separated from the balance of the herd and treated once daily until showing improvement or dying. Treated 17 head, four of them dying. Four of the herd not treated also died. Some only required 2 doses, while one took ten. Two of the four which died died with symptoms of cholera,

one of pneumonia and one apparently from septicæmia. This last one was the subject given 10 doses of serum.

The tenth day after beginning treatment the symptoms of cholera had disappeared, but the subject did not improve as it should, but instead continued to grow thinner and weaker until death. It is my opinion that death in this case was due to too much serum, but had it not been used death would probably have been produced by cholera. As I have said, one of this lot died of pneumonia and it is in such cases as this where there is a development of some local affection that the use of serum is most often condemned, for hog cholera antitoxin will not cure these complications.

It is a well-known fact that one of the characteristics of this disease is its liability to affect any organ of the entire body. This peculiarity is perhaps due to the greatly contaminated condition of the blood, together with the functional sympathy of the internal organs. And I have often thought, too, there is a tendency for the bacilli to accumulate at the seat of any local pyperæmia.

Through this condition of the blood the function of some organ becomes perverted, which may by functional sympathy derange the function of some other organ. This condition may then be followed by congestion and even inflammation of the parts, which, no doubt furnishing a more suitable soil for their propagation, causes the bacilli to accumulate and multiply very rapidly, creating or increasing the already existing local inflammation, thereby producing pneumonia, enteritis, nephritis, or whatever it may be, depending upon the location. After most any of these local affections have become well established the germ of hog cholera may be destroyed and the animal succumb from the local trouble. For this reason serum in many cases fails to have the desired effect. I mention this to show the necessity of sanitation and early treatment in order to be successful, for any unsanitary surroundings with the neglect of treatment for a few days may be all that is necessary for the development of such complications which might have been avoided.

In treating an outbreak of cholera I think it is best to begin as soon as you discover the disease. Give each animal of the herd one inoculation. Separate the sick from the balance of the herd and repeat the treatment upon these and any others that may show acute symptoms, once a day for 2 to 4 days, depending upon the severity of the symptoms. If the herd is very badly infected I think it best to change the entire herd to another yard. The dose I have been giving is about 10 cc. to 100 pounds of hog in large hogs and never giving less than that in smaller ones. I think it best to insert the needle deeply into the inguinal region, for when injected just under the skin one-third to one-half of the dose will return through the opening made by the needle and I have never seen an abscess form in this region. While the results of some experiments are not as satisfactory as we desire, yet I believe if the serum be properly administered and we exercise as much judgment and use the same precaution in the treatment of this disease as we do of others we will have very favorable returns and save perhaps 80 per cent. of the infected herds.

Some of my statements may not concur fully with the ideas of Dr. Peters and some other authorities, but I wish it understood that they are only my opinions and I do not pose as authority. I have made some other experiments in the last two weeks, among them repeated inoculation in healthy animals as a preventive measure, but am sorry sufficient time has not elapsed to observe their effects.

THE POTASSIUM IODIDE TREATMENT FOR PARTURIENT PARESIS.

BY J. E. BROWN, V. S., OSKALOOSA, IOWA.

I have been greatly interested in the reports recently given in the REVIEW on this subject. I have been equally disappointed with the results obtained by my own efforts with it, for they are a long way from being as satisfactory as most of the reports given would lead one to expect. I wish we could have

a report from each practitioner who has used the treatment, for I know there are a good many practitioners in whose hands the treatment has not been a success, but if we only get reports from those having had good results the impression that goes out is incorrect.

I have tried to study out why it is that the treatment has apparently been successful in some hands and unsuccessful in others. In the majority of cases, I do not believe the unsucccess is the result of carelessness of application. In my own case I am sure it is not, and I can only solve the problem, then, with the thought that the difference is in the severity of the cases.

I notice in many of the cases reported that the disease did not attack the cows until from the second to the fourth day after the calf birth. Also, that the reports say, "could *scarcely* hold her head up," etc. We know that the cases that come on, or develop early after the birth of the calf are the most severe, and that as more time intervenes between the time of birth and the appearance of the disease, the more mild is the attack.

I do not know of any reason why the disease should be any more severe or deadly in its attack on Iowa cattle, or on the cattle of this particular section than any other, but I do know that a very large per cent. of the cases that I see are those in which the attack comes on during the first twenty-four hours, and instead of "scarcely being able to hold up their heads," they are stretched out broadside on the ground, and more than likely in the blazing hot sun.

In one report the author says he finds it unnecessary to use any other treatment. In fully seventy-five per cent. of the cases that I treat I find them more or less tympanitic, and demanding special treatment for that condition.

In January, 1898, through the kindness of a friend who had been in correspondence with Dr. Schmidt, I learned of his treatment before it was generally known in this country. Early in the year I tried it on a few cases, but the results were not gratifying. I had been using the intravenous injection of a salt solution, with apparently better success than any other

treatment that I had tried. I then concluded that if there was any virtue in potassium iodide in treating "milk fever" I would combine the two forms of treatment by dissolving the potassium in the salt solution and inject intravenously instead of in the udder. That treatment seemed to act nicely with several bad cases, but later everything died that I attempted to use it on. Then the good reports from the udder injections again prompted me to take up that form of treatment and give it another trial.

I have just recently used this treatment on eight cases, three of which recovered and the other five died.

No. I.—This case came down with the disease the next day after the calf was born. I saw her in the evening; she could not get up. In addition to using the potassium iodide solution, fluid extract of digitalis was used in small repeated doses, for the pulse was very weak. Twenty-four hours later there was no improvement, and the potassium iodide solution was repeated. This case died the next day.

No. II.—This cow was down, but could hold her head up. The attack came on next day after calving. I saw her soon after the disease was noticeable, and made the injection. There was some bloating and sodii hyposulph. was given. The case improved slowly and got up two days later, and finally recovered.

No. III.—Cow was down, but would hold up her head at times, was considerably bloated when I saw her. The attack came on about twenty hours after the calf's birth. Treatment was begun two or three hours later. Pot. iod. in solution was injected, and sodii hyposulphite left to be given as necessary. Also fluid extract digitalis. During the first eighteen hours the case seemed to improve, then got worse, and the injection of pot. iod. was repeated. For a time there seemed to be improvement again, but it was of short duration, and the cow died the next day.

No. IV.—This cow was found down in the morning after having her calf the day before, and treatment was begun three

hours later. She was sprawled out broadside on the ground, and quite badly bloated, I used the trocar, and gave caffein as a stimulant. Then injected the pot. iod. solution, and left sodii hyposulphite to be given. This cow also was given a few doses of whiskey. The next morning the cow could hold her head up and noticed the other stock that came near her. The injection was repeated. Improvement continued, but she did not get up until the third day. She finally recovered.

No. V.—Was not down when I got to her, but fell while I was there. She had been fresh about two days. The pot. iod. in solution was injected, and as she was somewhat bloated, I left sod. hyposulphite to be given. The cow seemed better the next morning, but could not get up. Toward noon she got worse, and I saw her again soon after noon. Repeated the injection, and in the evening she got up. She made a gradual recovery.

No. VI.—Was found with her calf in the field in the morning. Was noticed to stagger that evening, but the owner "did not think much of it." The next morning she was down. When I got there she was floundering around and was badly bloated; could not support her head. The tympanitic condition was relieved with the trocar. Caffein given as a stimulant, and the pot. iod. in solution injected; sod. hyposulphite and fluid extract digitalis were left to be given as directed. During the first twenty-four hours the cow remained about the same, except that there was no further trouble from the bloating. The pot. iod. solution was then repeated, and in about eight hours more the cow revived sufficiently to get up. The next day she remained up most of the time, but then lost control of herself, sank down and died.

No. VII.—This cow was found in the grass lot with her calf in the morning. At about four o'clock in the afternoon was found down and helpless. The injection was made, and caffein used as a stimulant. At about seven P. M., the owner called at my office and reported the cow as being able to hold up her head and seemed lots better. He returned half an hour later and found the cow dead.

No. VIII.—Was too far gone for any treatment to do any good, though it did live several hours after the treatment was administered.

In addition to the treatment used as above described, the cases were all carefully watched and kept propped up as well as possible. Injections given per rectum, etc.

The direction of Dr. Schmidt was followed as closely as possible, except that I used a syringe, pumping a continuous stream into the gland and then with the same instrument I forced in a quantity of air. I was at all times careful to have the instrument thoroughly aseptic, and in fact every precaution was used to prevent any septic poisoning.

I should like to know wherein my treatment was lacking, that I could not obtain the brilliant results reported by some of our brother practitioners. This is a most important subject, and I hope we may have a general report of the experience of the veterinary profession at large.

(Reprinted from the Country Gentleman.)

HEREDITARY DEFECTS OF DOMESTIC ANIMALS.

BY W. L. WILLIAMS, V. S., ITHACA, N. Y.

The principles of breeding are founded on the tendency of parents to transmit to their offspring their own characteristics, whether good or bad, so that in selecting breeding animals it is quite as essential to avoid the one as to attain the other. A very excellent animal in a general way may be made useless because of some defect which the careful breeder could avoid.

As we shall use the term "hereditary," it will signify the transmission of an essential, integral quality from parent to offspring, and will not include the transmission of such diseases as tuberculosis, which is sometimes transmitted from mother to young prior to birth, simply by the transmission of the germs of the disease from the mother to the young animal in the womb, in much the same way as contagion would occur after birth.

Domestication consists largely in the increased development of certain desirable qualities in an animal species, and the dwarfing or repressing of undesirable characteristics. While bringing about these changes through domestication, it is essential

that harmony be preserved, and that no variation be induced incompatible with the proper performance of all essential functions. Domestication is specialization. The wild animal is a general-purpose animal. When we destroy by specialization the essential harmony of the animal body, we induce a *defect* which may vary in character, but may be largely included under two heads: 1. Arrested development of a part; 2. Over-development of a part. Should one of these defects be present in an exalted degree, it is generally classed as a monstrosity, and usually tends either to compromise the life of the monster or prevent it from procreating its kind.

Among the various hereditary defects, arrest in the development of a part is probably the most common; and since in domestication the safety of the young animal from enemies and starvation is guaranteed to a high degree, the reproductive functions are in a measure repressed to avoid overproduction, a repression which is carried so far that arrested development of the reproductive organs is common and important. Notable among these is the arrested development of the testicles of the male.

Early in embryonic life the testicles are formed just behind the kidneys, from which position they usually descend shortly prior to birth, pass outside the abdomen and rest in the scrotum. Arrest this process and a cryptorchid or ridgling is produced, the testicles remaining within the belly. As we castrate more than 99 per cent. of male animals, and since these "ridglings" require the services of a specially skilled operator at a price several times as great as that required for the ordinary male, the defect assumes considerable economic importance. In the horse the hidden testicle renders the animal disagreeable, unsafe and vicious; in meat-producing animals the meat is unfit for food. The hidden testicle is impotent, so that while an animal with one hidden testicle and one normal testicle breeds readily, one with both testicles hidden is sterile and ceases to perpetuate his defect. Few defects are more strongly hereditary than the hidden testicle; it is transmitted with great fidelity by the male having one normal and one hidden testicle, and we have no doubt is also transmitted in a less degree by females begotten by defective sires.

There was recently presented at the New York State Veterinary College clinics for other reasons a lamb having one hidden testicle. Inquiry revealed that the owner had bought in 1897 a flock of ewes all apparently sound, and one ram supposed to be normal. In the spring of 1898 the ewes gave birth to a total of

28 lambs, 21 males and 7 females. Of the former 14 had one or both testicles retained within the abdomen and 7 were normal, while the breeding ram on investigation, proved to be a "ridgling." We advised the owner to dispose of the ram and his progeny, male and female, normal and abnormal, for slaughter, as the only effective means of stopping the appearance of "ridgling" lambs.

Hereditary influence in the production of hidden testicles has likewise been amply illustrated in ridgling boars offered for castration. They have rarely come singly, but generally two or more at one time from the same dam or sire, and only one case has been offered which showed any other cause for the abnormality than arrested development of the organ.

Of equal interest is the hereditary transmission of herniæ or ruptures in animals, these being of two kinds, navel or umbilical and scrotal or inguinal. In each case it is due to arrest in the development of the respective parts, by which process the openings are so closed or narrowed as not to permit the passage through them of intestines or other internal organs. It is a notable fact that the two forms are interchangeable and must therefore be very closely related. In one case I observed a sow with navel hernia, and her pigs, eight or ten in number, each had one or more herniæ, the sow pigs the umbilical or navel rupture, while the boars showed either or both navel and scrotal.

A client engaged in breeding pedigreed draft horses, and raising ten to twenty foals annually, had not had a hernia among his horses until buying an excellent stallion, apparently free from any such defect, while his first crop of foals showed about 50 per cent. of navel herniæ. The second crop was not so bad, but the herniæ still appeared, and the owner very properly disposed of the sire. Doubtless he had, as a foal, shown navel hernia, which with age, tends to disappear if not very large. But the taint remains, and the defect is transmitted, whether the hernia be cured or has recovered.

Recently we had offered at our clinics for castration two boar pigs with scrotal herniæ from one sow, and from the next brood three pigs affected in the same manner, a total of five defective pigs from one sow within about six months. We have also observed some pigs with tumors on their foreheads, with the history that on the farm five to ten per cent. of all pigs dropped for a number of years have shown these tumors. Some of them died after a few days with brain symptoms; others recovered, leaving no external marks. The female line was constant, while the male

line was frequently changed. The defect was apparently due to an arrest in the development of the skull, leaving a portion of the brain uncovered and protruding; and while none of the sows bred showed any signs of the defect at the time of breeding, and may not even have done so when first born, they yet transmitted to their offspring, generation after generation, a defect which compromised the lives of a considerable number. The observation teaches that close relationship to defective animals, even if a parent has been always free from the defect, tends strongly to its perpetuation in the particular strain or family.

The over-development of a part is less common as a hereditary defect, possibly partly because over-development tends more strongly to compromise the life of the individual. One of the most common of this class of defects is excessive size of the head and neck. This is observed in various domestic animals. I recall a bull with a very heavy head and neck whose progeny inheriting his form, generally caused serious trouble at time of birth, the cows requiring assistance in many cases, thus compromising the lives of the young and mothers alike.

Instances could be multiplied, but all teach the same lesson—that defects are transmitted with as great fidelity as good qualities, and that the cure of or recovery from an essential defect does not prevent or even lessen the tendency to transmit and perpetuate the defect in the offspring generation after generation. It even teaches us that sound parents springing from a defective family tend to perpetuate in their offspring family weakness. A sow the offspring of a boar having scrotal hernia is unsound for breeding purposes, though the sex prevents her unsoundness as an individual. A careful study of antecedents of pedigree, should be made of every breeding animal and defects guarded against with as great diligence as good qualities are sought. A complete pedigree should show as far as possible every defect of ancestors as well as color or trotting speed, milk or butter record, and should have proper weight in fixing the value of a breeding animal.

VETERINARIANS OF NEW YORK: Do not thoughtlessly fall into the trap prepared for you by the Veterinary Service Association.

It is said that the only auto-truck in operation in New York has a capacity of three tons, and its machinery weighs eight tons. Evidently there will have to be a reversal of weights before it can hope to be popular.

REPORTS OF CASES.

“ Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

A NOVEL METHOD OF RETAINING AN EVERTED UTERUS.

By J. A. McCrANK, D. V. S., Plattsburg, N. Y.

What appears to me to be a novel treatment for eversion of the uterus came to my attention lately ; since then I am at a loss what to do about the matter, if I should do anything.

On June 18th of this year, a lady called at my office, asking me to go out about ten miles in the mountains to see a cow, which had been ailing for some time, and no one could understand her trouble. All the smart men in the district had visited her, and treated her, but all to no purpose. I went out, and found a cow standing in a meadow close to the house, where she could be watched and fed. She was very much emaciated ; her eyes were sunken ; she had not chewed her cud for some time ; her back was arched, and there was a purulent discharge from her vulva, and she laid a great part of the time.

History.—The cow belonged to a widow lady and her maiden daughter, sole inhabitants of the homestead, and I being a blooming, bashful, blushing bachelor, 'twas no easy task to get a history of the case ; but, after many vain efforts, I found out that the cow had dropped a calf about five weeks previous, and a few hours afterward she everted the uterus. Mr. G., a charlatan in the district, whose ignorance far overbalances his good or moral senses, was called. He replaced the uterus, but the cow has been ailing ever since. Now, I was worse off than ever. Could he have punctured the uterus ? Did he injure the uterus ? and would an injury cause such debility ? I was now at bay. I drove the cow to the barn, and passed my hand into the rectum, when I felt a hard irregularly shaped lump on or about the neck of the uterus. Next I passed my hand per vagina, and felt the same, but on manipulating to find what I had it dropped out of reach. Passed hand per rectum again, and felt the body deep in the abdominal cavity. My conclusion was that it was a tumor on the left horn of the uterus due to an injury.

At this moment a neighbor came to the barn, and I told him what I had found. He woke up to the cause of the trouble only now, for he helped to return the uterus. He said : “ Mr. G. returned the uterus, and placed a stone in the cavity to prevent

its expulsion again, and he (Mr. G.) said she would throw it out in a few days, and it is the stone you feel there."

Treatment.—I washed the parts all about the vulva, and I sponged out the vagina with a solution of creolin, for such was all I had with me. I now passed the knife into the vagina, made an incision on its superior wall and soon had my hand in the uterus, where I found the stone, 2 pounds 11 ounces in weight, tightly wedged into the left horn of the uterus. I removed it and washed out the cavity with creolin, took two stitches in the wall of the vagina, and gave orders for subsequent treatment.

Result.—The cow was in heat last week, but I forbade her to be served for six weeks to come; she is repairing very quickly; her flow of milk has returned and all hands, except Mr. G., are happy.

IS THE MEDIASTINUM ALWAYS PERFORATE?

By W. LINCOLN BELL, D. V. S., Brooklyn, N. Y.

A bay mare, six years old, suffered from pleuro-pneumonia, which after ten days became complicated by effusion into the thoracic cavity. Paracentesis thoracis was performed upon the right side between the sixth and seventh ribs, an ordinary sterilized trocar and canula being employed, and eight gallons were removed. The patient became much better after this, and gave promise of an uncomplicated recovery for one week, when the temperature rose and the respirations became labored, with marked bronchial râles in the left lung. Thinking that the effusion had reformed, the right cavity was again entered, but with negative results, although it was thoroughly searched at various depths of insertions of the canula. Not satisfied, the trocar was plunged in at the very bottom of the cavity, but without obtaining any fluid. The opinion was then advanced that the mare was affected with chronic interstitial pneumonia of the left lung, and an unfavorable prognosis given. After four days the respirations became so labored, and the physical symptoms on the left side so characteristic of hydrothorax that it was decided to aspirate that side, notwithstanding the popular acceptance of the assertion that when an effusion occurs on one side it must of necessity flow into the opposite cavity through the natural openings in the mediastinum. The result of the tapping of the left cavity was seventeen quarts and an immediate improvement in the condition of the patient, which now gives promise of ultimate recovery.

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By PROF. OLOF SCHWARZKOPF, Flushing, N. Y.

HEROINUM MURIATICUM.—Dr. A. Eulenburg reports experiments with the subcutaneous injection of heroinum muriaticum (300 injections) in the treatment of diseases of the bronchii accompanied by painful cough and dyspnœa and in emphysema. This new salt is readily soluble in water, which should be sterilized. The dose is the same as that of morphine. The therapeutic action consists in lessening the irritating cough, and in antiasthmatic and antidyspnœic effects. The results of injection were invariably uniform and no bad after effects were recorded, although it is a strong poison. E. concludes that heroinum muriaticum constitutes a valuable addition to our modern remedies, applicable only by the skilled physician and veterinarian.

BREWERY YEAST IN TREATMENT OF CATARRHS.—A rather curious, certainly a new method of treatment of catarrhs, especially of the vagina, has been announced by Dr. Landau of Berlin. He uses brewery yeast, kept on ice and renewed every three days. The yeast is mixed with beer or other fermentable fluid and the solution introduced with a syringe. The dose is from 16–20 c.c., renewed from two the three days. With the yeast treatment L. succeeded in suppressing all macroscopic signs of discharge, and the recovery has been lasting in the majority of cases. L. explains the anti-catarrhal effect of the yeast as follows: (1) direct mechanical suppression of the micro-organism of catarrh by proliferation of the yeast fungus; (2) dehydration of the affected membranes and withdrawing of nutrient material necessary for the life of the germs; (3) neutralization of the toxins of the micro-organism of catarrh by metabolism.

ITALIAN REVIEW.

FISTULA OF THE METACARPO-PHALANGEAL SYNOVIAL BURSA [*By Garibaldo Lisi*].—A mare, used for light draught, was brought to the author to be fired for enlargement of the fore

legs at the pasterns and with some ossified enlargements near the suspensory ligament. The operation was done with deep fine needles, and the animal properly secured to prevent her from biting. The second night, however, the mare got loose, and tore the skin of the right leg from the knee down to the coronary band, on the outside of the leg. The case was very serious, but by careful dressing of sublimate solution with iodoform gauze and a slightly compressive bandage, she began to improve steadily, when on the seventh day the owner took her out, the result of which was that the dressing got loose, and a fistulous tract, oozing synovia, was formed. Careful treatment gave some improvement, but the synovial discharge kept up and became suppurative, when more severe treatment was decided upon. The mare was thrown and secured, and the fistula freely opened upwards and downwards. The external sesamoid was found partly bare of periosteum, and also the lower part of the principal and external rudimentary metacarpal bones. The superior extremity of the os suffraginis was healthy. The sesamoid and uncovered portion of the metacarpal were scraped, and the cavity thoroughly disinfected with sublimate solution, then filled with aseptic iodoform and the leg wrapped with aseptic wadding. The dressing was renewed every three or four days, until the wound began to look better, when the treatment consisted only in injections of tincture of iodine. After fifty days the mare was cured and after seven months is doing her work well. All that remains of the trouble is a certain stiffness of the fetlock. There is but little blemish left, except a very small swelling on the joint.—(*Clinica Veterin.*)

RETENTION OF THE PLACENTA IN A COW—EXTRACTION PER RECTUM. [*By Romolo Morselli*].—The author noticed, in a five-year-old cow, a few days after parturition, which seemed to have been normal, and according to the owner had been well delivered, the ordinary symptoms of acute metritis. Vaginal exploration showed the os closed, scarcely allowing the entrance of the finger; the temperature was 40.5° C., the general aspect sickly, milk secretion stopped. There was a slight vaginal discharge. As the cow had had prolapsus of the uterus before, and as the owner had often reduced it himself, the veterinarian thought that perhaps similar manipulations had been resorted to and some traumatism produced. Cold compresses were applied to the loins, and a few doses of salicine and camphor in wine and tonics prescribed, with washings of the uterus with boric water. Little by little the animal improved, and yet the uterine dis-

charge continued abundant and with bad odor. To stimulate the contractions of the uterus tepid water was injected. A few days after (fifteen days after parturition) the cow rejected a certain mass of the placenta, much to the surprise of the owner. That was not all; a few days later the cow grew worse; by vaginal and rectal exploration the author discovered that the uterus was as big as a man's head, which could be explained by an incomplete delivery and a collection in the uterus. After 24 days from parturition another rectal examination revealed an opening of the inferior wall of the rectum, about 15 centimeters from the anus, which went into the uterus and through which 650 grammes of placenta were extracted. The cow recovered entirely.—(*Giourn. de Acad. Vet. Ital.*)

GEMELLAR GESTATION.—DYSTOKIA IN A COW [*By G. Guidotti*].—Two anterior extremities and a head in good presentation and position, already through the vulva, seem to belong to the same foetus. Six strong men are uselessly pulling on it. By exploration the author discovers two foetuses placed one on top of the other, both in the anterior presentation—an exception to the rule. The one whose feet are protruding through the vulva is in the dorso-sacral position, with the head bent downwards between the fore legs; the other, whose head is visible, is riding the other and has both fore legs kept back. Both foetuses are in the same amniotic sac. After much effort, the legs of the first foetus are pushed back, those of the second are brought into position and the foetus removed. The other was extracted readily afterwards. Both were dead. The cow recovered without difficulty. *In a Mare* [*By Michele Barbara*].—This case was in a mare. By vaginal exploration a foetus was discovered in the anterior presentation and vertebro-pubic position, with the anterior and posterior extremities flexed, and the head bent down on the knees. With some difficulty this foetus was, however, well delivered. But after a short time the mare began to show new pains, and soon another amniotic sac appeared through the vagina with a small foot protruding. After a second examination the other was also removed. This one was also an anterior presentation, in the left vertebro-iliac position, with the neck bent in such a manner that the head twisted upwards, and had the inferior jaw resting against the roof of the maternal pelvis. Both foetuses were well developed, well formed, and the mare recovered without any trouble.—(*Clinica Veterin.*)

A CASE OF RABIES—*STRONGYLUS GIGAS* IN THE ABDO-

MEN [*By Mr. A. Roudellii*].—A five-year-old pointer, ordinarily good humored, but sometimes capricious, at one time when in heat showed peculiar symptoms: loss of appetite, irritability, refusing sexual intercourse, although plainly in heat. He looked suspicious of rabies; a few days later the symptoms were more marked, he bit a dog and a person, and finally died paralyzed. At the post-mortem the veterinarian who made the diagnosis of rabies found it confirmed, but besides a *strongylus gigas* in the abdominal cavity, which had the serous membrane much inflamed. Mr. Tricerri hesitates as to the correctness of his diagnosis. However, the person who was bitten was placed under treatment, and the brain of the dog sent to Dr. Roudellii to inoculate two rabbits. Sixteen days later both died with rabies; inoculation in series as far as the third generation confirmed the diagnosis. The conclusion is that in pseudo-rabies one must not be too hasty in making a diagnosis for fear of serious sequelæ.—(*Giourn. de Acad. Vet. Ital.*)

VERMICULAR PHTHISIS OF CALVES [*By E. Perroncito*].—The author mentions a number of experiments that he has made on the duration of life of the strongyli with various liquids, administered by intratracheal injections: In sulphuric or muriatic acids, 1 per cent., it lasted 4 to 5 minutes; in phenic acid, 1 per cent., 5 minutes; in creosote, 1 per cent., 7 to 8 minutes; in saturated solutions of thymol, 6 to 8 minutes; in aqueous solutions of salicylic acid, 17 minutes; in formaline, 1 or 2 per cent., 5 to 6 minutes; in a liquid composed of 5 parts thymol, 5 of chloroform, 45 of glycerine, 5 minutes. Dr. Cattania, who treated animals with those preparations, considered the injections of phenic acid by far the best.—(*Giourn. Veter. Soc. di Torino.*)

DURATION OF GESTATION IN THE SOW [*By S. Baldassire*].—The following interesting records are published from observations made by the author in sows: In Yorkshire breeds.—1 gestation of 99 days, 4 of 112, 6 of 113, 6 of 114, 10 of 115, 11 of 116, 5 of 117, 4 of 118, 2 of 119, 2 of 120, 1 of 128, 1 of 129, 1 of 136. In Casertana breeds.—3 gestations of 106 days, 3 of 107, 2 of 110, 4 of 111, 2 of 113, 2 of 115, 2 of 116, 1 of 122. In crossing these breeds the averages have been 113, 114, 110, 109 and 111.

THE STATE MEDICAL SOCIETY OF NEW JERSEY offers the "Fellows Prize" of \$100 for the best essay on "Hydrophobia" presented by a member at their next meeting.

CORRESPONDENCE.

QUESTIONS FOR STATISTICS ON SCHMIDT'S TREATMENT OF PARTURIENT PARESIS.

Editors American Veterinary Review :

DEAR SIRS:—Having been urged by Secretary Dr. Stewart, A. V. M. A., Prof. Roscoe R. Bell and others to bring the subject of Schmidt's treatment of milk-fever before the National Association for discussion, I feel it my duty to comply with their wishes, although I have little new to offer at the present time. However, these colleagues have suggested to me to collect American statistics of the treatment, and I have propounded below a schedule of questions which will secure us ample material for discussion. None of our colleagues who have tried this new treatment need be ashamed to send in reports of unsuccessful attempts or adverse results, for our aim should be to discover the disadvantages of this treatment as well as its advantages. The questions may be answered by referring to the numbers only :

1. Breed of cow.
2. At what time after delivery taken ill?
3. At what time treatment inaugurated?
4. How much iodide of potass. injected?
5. At what time occurred recovery, complications or death?
6. What complications or bad after-effects were conspicuous?

Please send replies *at once* to

OLOF SCHWARZKOPF,
Flushing, New York City.

REMARKS ON SCHMIDT'S THEORY AND TREATMENT OF PARTURIENT PARESIS.

COLUMBIA, TENN., July 20, 1899.

Editors American Veterinary Review :

DEAR SIRS:—In the hands of the majority of veterinarians, according to their reports, the iodide of potash treatment in parturient paresis has given splendid results. While my results have not been entirely satisfactory, I still have faith in believing that almost a specific has been found for this troublesome disease. Some of my patients have had unfortunately other complications associated with parturient paresis, but I will give a brief summary of both the good and bad, for it is only by so doing that correct comparisons can be made. They were all

treated in the minutest detail in the manner given by Schmidt. The ones that presented complications had, of course, to receive extra attention.

No. 1. Parturient paresis, with inversion of the womb—death.

No. 2. Parturient paresis—death.

No. 3. Parturient paresis, inversion of the womb, half udder gangrenous—death.

No. 4. Parturient paresis—death.

No. 5. Parturient paresis—recovery.

No. 6. Parturient paresis—death.

No. 7. Parturient paresis—recovery.

In the two cases recorded as recovering, the results seemed to be astonishingly good, as both patients regained their feet in seven and eight hours respectively. The question which I have from the first asked myself is, why do we administer this iodine solution by the way of the lactiferous ducts? It does, indeed, seem a somewhat laborious way of administration. Does it not have to enter the circulation before it can act? and would it not be far more quickly absorbed if given in the ordinary manner? It is of course unquestioned that the milk secretion can be checked by the internal administration of iodide of potash. Is it not a fact that hours after the introduction of this solution by way of the mammary gland there is still quantities of it left there? Of course, to the majority of our clients this seems to be the most direct method of doing good, for its name (milk fever) would suggest to them local medication, but to a medical doctor, should we have occasion to treat a case of this disease for him, what answer should we make if he asked the question, why not give your solution by the ordinary channels? has it not to enter the circulation?

As to the cause of parturient paresis, Schmidt's theory, I believe, of the origin of this disease is in an abnormal secretion of colostrum. If this be so, how then can we account for cases occurring anywhere from two to eight weeks or even twice that length of time after parturition? Surely no one would suggest that the mammary glands contain colostrum at so late a date. I have had in my practice cases from two to five weeks after calving, and, is it possible, nearly six months after? I will leave you to judge. A short time ago I was called early one morning to see a cow, a registered tested Jersey, that presented all the symptoms of parturient paresis. She was lying resting on her sternum with head turned around towards the flank. She

ground her teeth at intervals, and the coma became more and more marked. Soon the eyes became fixed, dull, and lustreless; the temperature 37° C., respiration stertorous, fæces in the rectum small, very hard, and dark. On inquiry, I was told that she had had a calf five and a-half months previous. I, therefore, concluded that in all probability I had some trouble of the alimentary canal to deal with, and I administered a powder of aloin four and one-half drachms, gave clysters, and catheterized the bladder. Before leaving she became tympanitic, and I tapped her, and left my trocar and canula with the owner, with instructions how to use it. I also showed him how to prop the cow in case she got over on her side. That night I found no change in my patient; I had a powder of pot. iod., 3 iij, in my case, and thought I would try it, so I dissolved it in about half a pint of water and gave it per orem. Her breathing was then very labored, her look blank, and no reaction on touching the eyeball. Seven hours after receiving the solution she arose. Whether this was a case of parturient paresis or not I cannot say; I only know, after having had a good deal of experience in the treatment of cattle, I was unable to distinguish between this disease and the many cases of milk fever that I have met with.

In conclusion I wish it to be understood that I in no way wish to depreciate the work that Mr. Schmidt has done to clear up the mysteries hanging around this disease, but that I want to have more light thrown on these two points that I have brought before you, namely: as to why we administer the iodide of potash by way of the mammary glands, and can this disease have its origin in an abnormal secretion of colostrum when we can meet with this disease so long after colostrum has formed in the mammary glands. P. D. BRAY, *Veterinarian*.

MORE EXPERIENCE WITH COCAINE.

EVANSVILLE., IND., July 15, 1899.

Editors American Veterinary Review:

DEAR SIRS:—On page 296, July REVIEW, in your reply to Dr. Abbott you suggest hearing from other practitioners in regard to the action of cocaine.

I have experienced the same results in several cases. One in particular being a mule, and in another a trotting gelding, it seemed to produce great excitement and hyperæsthesia over the field of injection. I, however, use only a 4 per cent. solution and find just as satisfactory results in locating lameness or for firing, nerving, etc., as with the stronger solution.

Very truly yours, J. R. MITCHELL.

VETERINARY SCIENCE IN JAPAN.*

This profession can be followed only by one who has obtained a license from the Minister of State for Agriculture and Commerce.

Those enumerated below may obtain the license :

One who has passed a veterinary examination and holds a certificate ; one who holds a diploma of a governmental veterinary school or a certificate that he has passed a special course of the veterinary department of the agricultural college ; one who holds a certificate that he has passed a special course of the veterinary department in a public or private school, the curriculum of which has had the approval of the Minister of State for Agriculture and Commerce ; one who holds a graduate certificate of a governmental or public veterinary school in a foreign country.

A license fee of 1 yen (49 cents) must be paid ; a renewal of license on account of loss can be made upon the payment of 50 sen (24 cents).

A suspension of business for not less than five days and not more than fifty days, or entire prohibition of occupation, may be adjudged, if there be any offense with regard to veterinary practice or improper conduct, by the Minister of State for Agriculture and Commerce, according to the circumstances of the case. This prohibition may be rescinded after three years have elapsed, if deemed advisable, in which case the practitioner must apply for a fresh license.

A fine of not less than 5 yen (\$2.49) nor more than 50 yen (\$24.90) will be imposed upon one who has practiced veterinary medicine or surgery without obtaining a license. A fine of not less than 2 yen (99 cents) nor more than 25 yen (\$12.25) will be imposed upon one who follows the business while he is under suspension.

A penalty of not less than one yen nor more than 1.95 yen will be imposed upon a veterinary surgeon who shall have refused to comply with the request of others for professional services, without proper reasons therefor.

The Minister of State may issue a provisional license to a person who has none of the qualifications enumerated above, but whose antecedents merit such favor, by limiting the area of operation and the period of practice, upon the recommendation of a governor of a prefecture where veterinary surgeons are scarce.

* Extracted from U. S. Consular Reports by W. J. Martin, M.D.C., Kankakee, Ill.

OBITUARY.

M. J. TREACY, M. R. C. V. S., Eighth U. S. Cavalry, died of yellow fever in Puerto Principe, Cuba, on July 14. Dr. Treacy had been in the English army service in India, and came to this country about twenty years ago. He practised for a time in the West and also occupied the chair of veterinary medicine at the University of Minnesota, but later joined the U. S. army. He has been one of the staunchest advocates of veterinary reform in the army, and fifteen years ago published a leaflet entitled "The Defects in the U. S. Army Veterinary Service," which, without his name, has been used for many years in Congress as a forcible argument for veterinary legislation. He also spent considerable amounts of money for the same cause. It is reported that Dr. Treacy had just passed the examination prescribed by the Army Reorganization Bill, and it is a cruel fate that has kept him from finally enjoying the fruits of his unceasing labors. He should be remembered by the American veterinary profession as one who has enthusiastically and steadfastly worked for the betterment of a branch of our profession.

O. S.

ISAIAH MICHENER, V. S., died in the early part of June at his home in Carversville, Pa., aged about eighty years, sixty of which had been devoted to the practice of veterinary medicine. Beginning in the early part of the present century, many years before the establishment of veterinary schools in this country, he did not have the advantage of a college training, but it has been said of him that through hard study and close observation he had acquired a fund of veterinary knowledge based upon the most scientific lines. He was a teacher in the earliest schools established on this Continent at Philadelphia, and was a charter member of the United States Veterinary Medical Association, and labored assiduously for its success, as well as for that of his profession in every branch, and to his influence and example much is due for its present high position. Besides giving his own life to its cause, he contributed two bright sons, the late Dr. Charles B. Michener, and Dr. J. Curtis Michener, of Colmar, Pa., besides another son engaged in the practice of human medicine.

A. E. CONROW, V. M. D., M. D.—At Philadelphia, in June, this well-known veterinarian succumbed to the effects of an operation for appendicitis, following but eight weeks the death of his wife, and leaving six small children. He was born in

New Jersey, and took his veterinary degree at the University of Pennsylvania, in 1892, subsequently graduating in human medicine. He accumulated a large practice and was active in politics.

ERNEST CARY-ELWES, V. S., Ontario, '98, who had been practicing at Jacksonville, since shortly after graduation, died at the residence of his father, Col. D. G. Cary-Elwes, in Conway, of heart disease, aged twenty-four years.

SOCIETY MEETINGS.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

Place and Date of Next Meeting : New York City, September 5, 6, and 7, 1899.

Convention Hall : Large Assembly Room of the Academy of Medicine, 17 West Forty-third Street, near Fifth Avenue.

Headquarters : Hotel Manhattan, corner Forty-second Street and Madison Avenue.

Local Committee of Arrangements : Drs. H. D. Gill (chairman), Roscoe R. Bell, George H. Berns, E. B. Ackerman, and W. H. Pendry.

Location of Surgical Clinic : American Horse Exchange, Fiftieth Street and Broadway.

Pathological Exhibit : Eastman's Abattoir, Fifty-ninth Street and Eleventh Avenue.

Officers of the Association : President, Dr. A. W. Clement, Maryland ; Eastern Vice-President, Dr. Leonard Pearson, Pennsylvania ; Middle Western Vice-President, Dr. A. H. Baker, Illinois ; Western Vice-President, Dr. S. B. Nelson, Washington ; Secretary, Dr. S. Stewart, Kansas ; Treasurer, Dr. Wm. Herbert Lowe, New Jersey.

STANDING COMMITTEES FOR 1898-99.

Executive.—C. A. Cary, Alabama (chairman); J. F. Winchester, Massachusetts ; W. H. Hoskins, Pennsylvania ; Roscoe R. Bell, New York ; M. H. Reynolds, Minnesota ; A. T. Peters, Nebraska ; D. E. Salmon, District of Columbia. *Ex-officio*—A. W. Clement, Leonard Pearson, A. H. Baker, S. B. Nelson, S. Stewart and W. H. Lowe.

Army.—D. E. Salmon, District of Columbia (chairman ; F. H. Mackie, Maryland ; W. H. Hoskins, Pennsylvania ; J. P. Turner, District of Columbia ; M. Stalker, Iowa.

Publication.—W. L. Williams, New York (chairman); Roscoe R. Bell, New York ; W. Herbert Lowe, New Jersey ; R. P. Lyman, and S. Stewart (*ex-officio*).

Finance.—C. C. Lyford, Minnesota (chairman); John R. Mitchell, Indiana; Lemuel Pope, Jr., New Hampshire.

Resolutions.—Leonard Pearson, Pennsylvania (chairman); James Law, New York; T. E. White, Missouri; J. C. Norton, Arizona; L. A. Merillat, Illinois.

Diseases.—C. W. Heitzman, Louisiana (chairman); Tait S. Butler, Mississippi; H. D. Gill, New York; J. M. Parker, Massachusetts; H. P. Eves, Pennsylvania.

Intelligence and Education.—M. Stalker, Iowa (chairman); James Law, New York; F. H. Osgood, Massachusetts; Joseph Hughes, Illinois.

PATHOLOGICAL EXHIBIT.

The REVIEW very much regrets the announcement in the July issue to the effect that owing to the difficulty in securing sufficient material the exhibit for this year had been abandoned. The local committee decided in accordance with this announcement, but unfortunately they were not in close touch with the Secretary, who has been pursuing the collection of specimens in all the great western live stock centres for some months, and who assures the committee that it has proceeded so far as to surpass by long odds the very creditable display at Omaha. The inspectors for the Bureau of Animal Industry at Omaha, Kansas City, St. Louis and Chicago will have a great mass of specimens illustrating almost every diseased condition usually met in the abattoirs, and they will be shipped to New York free of cost to the association, or at least, at very little expense. In view, therefore, of the discussion upon Meat Inspection the exhibit will be very helpful and lend additional interest to this important subject.

LITERARY PROGRAMME.

Besides the important discussion upon sanitary subjects (including "Municipal Meat Inspection," "Dairy Inspection," "Disinfection" and the "Suppression of Tuberculosis,") which were detailed in the July REVIEW, there were given in that issue the titles and authors of twenty-four papers to be read, a repetition of which is here deemed unnecessary. Since then the Secretary informs us of the following additional papers:

Dr. James B. Paige, of Massachusetts, "European Veterinary Institutions."

Dr. J. M. Parker, of Massachusetts, "Notes on Rabies."

Dr. E. M. Ranck, of Pennsylvania, "Tetanus Antitoxine."

Dr. N. S. Mayo, of Connecticut, "The Veterinarian of the Future."

Dr. Hermann Wellner, of New York, "Rheumatism in Domestic Animals."

With these five papers the programme will contain, in addition to the sanitary discussion, twenty-nine papers, and it is much more than likely that others will be received. This exceeds by far any former record, and the association will be compelled to enforce the twenty-minute rule, and otherwise expedite matters to get through with such a mass of material.

THE PROGRAMME OF ENTERTAINMENT was fully outlined in the July number, and nothing has transpired to change the details there given, either in that for the members, or for the ladies.

Veterinarians coming from a distance will bear in mind that the railroads have granted the usual reduction in fare—that is, full fare to the convention city, and one-third rates on the return fare.

NOTES.

Drs. Joseph Plaskett, H. D. Fenimore and W. N. D. Bird, of Tennessee, have planned to enjoy the Congress of Veterinarians in the great metropolis.

The following States west of the Alleghenies and south of the Potomac will certainly be represented at this year's meeting: Virginia, North Carolina, South Carolina, Tennessee, Kentucky, Alabama, Louisiana, Arkansas, Missouri, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Nebraska, Kansas, Colorado and Washington, and it is confidently expected that several other States as well as the Dominion of Canada will be duly represented.

Dr. Benjamin McInnes, of Charleston, and Dr. Nesom, of Clemson College, South Carolina, have expressed their intention to participate in what will undoubtedly be the greatest meeting the association has ever held.

Kansas City will be represented at the New York meeting by Dr. John S. Buckley, Dr. Robert C. Moore and Dr. S. Stewart.

Nebraska will show her appreciation of the association's visit to that State last year by sending a large delegation to New York. The following members expect to attend the meeting: Dr. Don C. Ayer, of South Omaha; Dr. A. T. Peters, of Lincoln; Dr. J. S. Anderson, of Seward; Dr. V. Schaefer, of Tekamah, and Dr. H. L. Ramacciotti, of Omaha.

Dr. S. K. Spaulding, Health Commissioner of Omaha, expects to attend the meeting, as he is very much interested in the sanitary subjects to come before the association.

Dr. J. M. Wright, of Chicago, will join in the pilgrimage to New York City.

Dr. J. C. Meyer, of Cincinnati, will probably present the claims of that city for the meeting in 1900.

Cleveland, Columbus, and Detroit will doubtless be candidates for the meeting in 1900.

Where in our great country does the veterinarian live who is not greatly interested in the subject of "Disinfection," and who would not sacrifice a day's business to hear Dr. Grange's paper on that topic, with the discussion which it is certain to elicit?

He who fails to see the display of pathological specimens found in food animals which will be made in conjunction with the discussion on Municipal Meat Inspection, will miss an opportunity he is not likely to have again. The specimens will be shown in the fresh state, just as they appear on the slaughter-bed, and are being collected in a number of widely separated localities, hence will include a greater variety than will likely be gathered again, unless the Federal Government should undertake such a collection. Many veterinarians will be contributors to the collection, and to any person really interested in food inspection it will be worth the cost of the journey to New York to have the privilege to see and to study this collection.

The numerous papers to be presented during the meeting which relate to general veterinary practice and the several hours to be devoted to clinical demonstration of numerous important operations, also some of the more recently devised operations, must certainly convince the general practitioner that the meeting for 1899 was planned for his special benefit and that he cannot afford to stay away.

If the veterinarians in the area surrounding New York City attend this meeting in proportion to the attendance at Omaha last year from Nebraska and Iowa, the Secretary's roll will not hold all the names.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

The annual meeting was held at the Y. M. C. A. Building, in the city of St. Joseph, Missouri, June 26th, 1899.

The meeting was convened at eight o'clock P. M., with Dr. S. E. Bennett, President, in the chair. Dr. Kelly, in the absence of Dr. W. A. Heck, Secretary of the association, acted as Secretary of the meeting. Those in attendance were Drs. Ben-

nett, Stewart, and Moore, Kansas City; W. N. Hobbs, Holton, Kan.; Forbes, Kelly, Washburn, Wright and Netherton, of St. Joseph. Visitors and others present: Drs. James Wilson, J. E. Blackwell, Thomas H. Ripley, Joseph Good, H. C. Patterson, John A. Sloan, Joseph Thackaberry, St. Joseph; Dr. A. T. Peters, of Lincoln, Neb.; Dr. V. A. Schaefer, of Tekamah, Neb.; L. C. Brown, of Hamilton, Mo.; M. Y. Schaefer, of Mount Ayr, Iowa; Dr. G. R. Conrad, of Sabetha, Kan., and Dr. Hansen.

The Board of Censors reported the following applications for membership: G. R. Conrad, L. D. Brown, H. G. Patterson, V. A. Schaeffer, M. Y. Schaeffer, John A. Sloan and Joseph Thackaberry. Said applicants were found to be eligible to membership, and satisfactory to the association.

It was then moved by Dr. Forbes that the rules of the association be suspended and that the Secretary be instructed to cast the vote of the association for the above named gentlemen, which was duly seconded, and carried.

Next in order was the reading of the report of the Secretary. It was moved and seconded that the report of the Secretary be received as read and placed on file. Motion carried.

The Secretary then read the resignations of Drs. W. A. Heck, W. P. Steddom and W. P. McCurdy. It was moved by Dr. Forbes that the resignations be accepted, and in the case of Dr. Heck he suggested that as he had proven an efficient member and able officer of the association while acting in the capacity of Secretary, it would be a grateful act on the part of the association to elect him an honorary member.

ELECTION OF OFFICERS.

The next business was the election of officers—nominations first in order for the office of President.

Dr. Forbes: Seeing that the association has been so flourishing during the past year under the present executive, I think another term desirable, and I propose the name of Dr. Bennett for re-election for another year.

Dr. Bennett: I appreciate the courtesy, gentlemen, of re-electing me as President for another term, but I do not think the flourishing condition is due in any manner to my efforts, but to those of the Secretary. What we want is a hustling Secretary, and I think I can do more for the association as a private member and not as President, and I prefer not to serve another year.

Dr. Stewart: I propose the name of Dr. Forbes, who has been an active member of the association.

Dr. Forbes: It is probable that some of the other offices will be filled from St. Joseph, and I think it would be advisable to divide the offices between the other places on the river, and would withdraw my name.

Balloting upon the nominations of Drs. Bennett and Forbes was now in order. The President thereupon appointed Drs. Stewart and Washburn tellers to receive and count the ballots cast. A ballot being taken, the tellers announced that ten votes had been cast for Dr. Forbes, and five votes for Dr. Bennett.

Dr. Bennett: According to the ballots cast by the association Dr. Forbes has been duly elected President of the association for the ensuing year.

Dr. Moore presented next the name of Dr. Bennett for First Vice-President. There being but one nominee, the rules were suspended and the Secretary instructed to cast the ballot of the association, and Dr. Bennett was unanimously elected First Vice-President.

Dr. Stewart presented the name of Dr. V. A. Schaeffer for the office of Second Vice-President, and there being but one nomination, the rules were suspended and the Secretary instructed to cast the ballot of the association.

Dr. Forbes presented the name of Dr. James S. Kelly for the office of Secretary and Treasurer. It was moved and seconded that the President cast the ballot of the association for Dr. Kelly as Secretary and Treasurer for the ensuing year. The motion prevailed and Dr. Kelly was elected.

Drs. Washburn, Netherton, Bennett, Moore and Stewart were elected as the Board of Censors for the coming year.

Dr. Bennett then vacated the chair and said: "I thank the association for the courtesy extended to me during the past year, and I hope the members will take as much interest in the association during the coming year as they have in the past. I now turn the office over to Dr. Forbes."

Dr. Forbes on assuming the presidency said: "As the association has insisted, I will assume the duties of President, and I hope I will be able to conduct the affairs of the association in the same efficient manner that they have been conducted during the past year. I crave the indulgence of the members and hope that any fault that may occur will be overlooked."

The next order of business being the reading and discussion of papers, Dr. R. C. Moore, of Kansas City, Mo., read the following essay:

"GANGRENOUS GREASE OR DERMATITIS GANGRENOSA."

So far as I have learned Dollar's translation of "Möller's Surgery" contains the only mention of this serious and at times quite common malady.

It is characterized by moist gangrene of the skin and adjacent tissues of the phalanges of solipeds which produces extensive sloughing, and is supposed by some to be due to cold, but this idea is certainly incorrect. I have met with several cases and not a single one in cold weather. On the contrary, it has developed during quite warm weather and in at least one instance dry weather. So cold cannot be the sole cause. Infection through slight wounds is doubtless an important factor in the causation.

We might suspect obstruction to the circulation, but were that the cause the necrosis would be confined to the part that was robbed of nutrition and the dead tissue would be separate from the living, and no further invasion would occur, but in this affection new areas are rapidly invaded until the entire foot is destroyed or the animal dies from septic intoxication.

It is evident that much is to be learned of its etiology. It is sudden in its attack, often manifesting itself in a night, though its true character may remain obscure for one or two days.

The leg involved is swollen and extremely painful and resembles an acute attack of scratches. In the latter the soreness and swelling subside with exercise, while in the former it does not but is aggravated and the debility of the patient is more marked. After a few hours a careful examination will reveal a moisture of the skin in the affected part, and by gentle pressure a red turbid serum can be squeezed out that has the characteristic odor of gangrene, the surface of the necrotic spots will be cold and clammy while surrounding parts may have a supernormal temperature. The necrotic patches are usually small, but may involve larger areas. If located about the posterior part of the fetlock it may extend across the region as a crack like scratches, or it may extend up and down on either side of the flexor tendon from the coronet to fetlock, or upward from the fetlock, involving the entire distal metacarpal region. The swelling may extend to the hock or knee, or even higher, the animal becomes restless, showing extreme pain. The temperature is elevated, the pulse accelerated, small and weak, and debility soon becomes well marked. In two or three days the necrotic patches are cast off as slimy masses. The disease may terminate here and the wound fill

with granulations and recovery by cicatrization be complete in two weeks, but this termination is the exception rather than the rule, for in most cases new cutaneous areas and the deeper structures as well are invaded, sloughing extends to blood vessels, causing serious hemorrhage, tendons and ligaments are destroyed, even the capsular ligament, resulting in open joint; or it may extend behind the lateral cartilage, resulting in cartilaginous quittor. It is not often that these conditions are found excepting the destruction of the blood vessels, as in most instances the system ere this absorbs a sufficient amount of poison to produce a general septic condition that rapidly leads to death; the difference in the termination probably being due to the ability of the system to resist the poison. When the patient has sufficient vitality to resist the generalization of the poison the destructive process extends to the deeper tissues of the affected limb and the worst appearing sore that can well be imagined will be the result. The vessels, nerves, tendons and ligaments having more power of resistance than the cellular tissue surrounding them, hence the latter is destroyed, leaving the former in position so that they are often plainly visible for several inches, even the bone may become exposed to view. The coats of the veins being the thinnest are usually the first to be destroyed after the cellular tissue and serious if not fatal hemorrhage results.

The prognosis depends very largely on the extent and character of the individual case. It is claimed by some that certain atmospheric conditions favor gangrene, and during such seasons many wounds are troublesome and at such times we would naturally expect gangrenous dermatitis to be more malignant. If the attack be mild and the invasion limited, prognosis is favorable, but if it is extensive and rapidly extending to the deeper structures, it is doubtful, and if ligaments, vessels and tendons are destroyed or generalized septicæmia is established the gravity of the case is greatly increased.

Treatment: As the infection may take place through a very small wound, we will not be likely to succeed by preventive measures. The disease being rapid in its progress, treatment in the advanced stages is doubtful, and if successful the time required to cicatrize the extensive wounds is so long the financial benefits to be derived by the owner from treatment is doubtful. Whatever therapeutic efforts are undertaken should be heroic and applied at the very earliest moment possible after the disease begins. An antiseptic course locally as well as internally

is the one the conditions would most likely prompt us to have recourse to. I have frequently resorted to these without effect. I have gone further with germicides even to a degree of potential cautery and still with doubtful results.

The one agent that has been successful with me in this as well as other forms of gangrene is the actual cautery. I have treated these cases a number of times with the thermo-cautery when it seemed the entire foot was in an advanced stage of moist gangrene, even when sensation was so far destroyed that the animal would allow the hot iron to remain in the tissues for some time without the least resistance and when I thought treatment was entirely useless, and 24 hours later find the disease not only in check but every trace of gangrene gone, leaving only the resulting sores that required nothing more than the usual treatment for simple wounds.

Various kinds of firing irons may be used. The thermo-cautery point that I have used is oval in shape, the largest diameter at the base being about one-half inch, and tapering slightly to a blunt point. I prefer to use it at quite a high temperature, even a white heat, and to puncture into the deeper tissues in various directions, in all the invaded tissues, being careful not to wound the important vessels and joints. Where the skin has sloughed, the cautery point at nearly a white heat is applied to all the denuded surface with deep punctures around the edges. If the disease has originated in the sole from a wound, as may happen, and has extended up to the coronary band and adjacent tissues, I remove all the sole and frog that has been loosened by the disease and if the sensitive sole is much diseased, puncture it even to the solar surface of the os pedis. Twenty-four hours after firing, if it has been sufficient, the previously moist skin will be dry and the underlying tissue that has been soft and pulpy from infiltrated serum will be reduced in size and be firm to the touch with increased heat of the surface and will be soon followed by a healthy discharge and granulation. If at the expiration of 24 hours, some of the parts are still discharging red, turbid serum, are moist, cold and clammy, more firing is indicated.

After the destructive process has been arrested, cleanliness, antiseptics and astringents insure resolution.

If the case be an aggravated one and debility is marked, stimulants are indicated, and the liberal use of hyposulphite of soda will assist in arresting the fermentation of the blood.

DISCUSSION.

Dr. Bennett : About how long was it after firing of these cases till they recovered ?

Dr. Moore : That will depend on the amount of sloughing that has taken place, usually twenty-four hours after firing.

Dr. Bennett : Do you think it is due to some specific cause ?

Dr. Moore : I believe it is.

Dr. Bennett : You did not notice it in wet weather ?

Dr. Moore : Yes.

Dr. Bennett : Was it more prevalent in dry weather ?

Dr. Moore : I believe it is more prevalent in some stables than in others.

Dr. Bennett : Do you suppose that this is due to the unhealthy condition of the stable ?

Dr. Moore : I do not know ; I could not say that. The stables that I found it in were not particularly unhealthy.

Dr. Bennett : What was the condition of these animals you have noticed ?

Dr. Moore : Some have been horses in good condition, some were hard worked animals. I have met with those conditions ever since I have been in practice, but never understood them. Moller has given the first light I have been able to obtain on it. I do not believe it is confined entirely to heavy horses, yet I think we find more of it amongst them, probably there is more cause in that class of horses. I think the larger majority of the cases was in Clyde horses or in horses of similar build. Referring to horses that have worked on coal wagons, while I have seen one or two cases of that kind, yet I have seen one case in particular in an animal that had been in town a short time in the spring of the year, and had not been worked more than a day or two. I do not believe that those conditions have very much or anything to do with it ; I think it is infectious entirely.

(To be continued.)

CHICAGO VETERINARY SOCIETY.

The regular monthly meeting was convened on Thursday evening, April 13th. President Robertson presided and the following members were present : Drs. Frank Allen, A. H. Baker, L. Campbell, A. M. Casper, Jos. B. Clancy, C. F. Griener, W. E. Howe, Jos. Hughes, C. G. Nelson, H. D. Paxson, and Jas. Robertson.

Dr. Jos. Hughes, Chairman of the Legislative Committee, reported the result of the committee's inquiry into the sentiments and attitude of the recent candidates for the mayoralty, and found that it is perfectly and absolutely useless to make any further effort to persuade the present mayor to do anything favorable in our behalf.

The applications of Drs. H. Busman and A. J. Pistor for membership were favorably reported on by the Board of Censors and they were duly elected.

TEMPERATURE AND ITS RELATION TO SOUNDNESS.

Dr. A. M. Casper presented the subject of "Temperature and Its Relation to Soundness," which was discussed at length and proved very interesting to all present.

Dr. Casper: I would like to ask the members of this society what in their opinion the temperature of a horse has to be in order to pronounce same unsound. Should an animal with a temperature of 103, that is green and is for sale at the yards, be rejected? That is, if there are no other symptoms of disease present. Although this high temperature is a deviation from a normal point, I do not think that such an animal should be rejected. If you would ask me if that animal is absolutely sound I would say "no," but ordinarily I would pass an animal like that, advising the owner to watch him for a day or two. I would like to hear the opinions of the members on this subject.

Dr. Campbell: I do not think that I would pass a horse that has a temperature above normal.

Dr. Griener: I bought two horses a few weeks ago and just for curiosity took their temperatures. They had an elevation of two degrees above normal. I do not think it amounts to much. These horses are all right now, and as most of the green horses have a rise in temperature we ought to be very lenient. After they got accustomed to the barn they were all right. There was a slight loss of appetite for the first day or so.

Dr. Baker: Mr. Chairman and gentlemen, this idea of taking the temperature of horses without any symptoms that may cause suspicion that something is wrong is a new idea to me. I never think of doing such a thing unless there is something to arouse my suspicion that there is something wrong. If there is no cold nor loss of appetite present I think it is superfluous. I never had the curiosity to take the temperature anyway, so that I am unable to add anything to the history of such cases, but if it is a fact that these green horses all have an elevation of temperature

without any other symptoms of disease I think it would be impolitic to reject them on account of that. Horses brought from the country into the city are always somewhat excited and this excitement is aggravated by the pushing, hauling, whipping, etc., that they get in the yards, which is sufficient to produce an elevation in temperature. It is known as ephemeral fever. The change of feed and the different surroundings are sufficient to produce some elevation of temperature, but without any other symptoms, I think it would be an injustice to reject such horses.

Dr. Howe : I have often found that the slightest little change caused some rise in temperature.

Dr. Paxson : I think that the thermometer is very important and should be used to a greater extent. In cases of influenza, for instance, the thermometer points to the affection before any other symptoms are apparent. So that you can check the disease before it develops. Many times horses are found apparently well that have high temperatures, and the next day they are found to be very sick. I think that from a scientific standpoint we should not accept a horse with abnormal symptoms.

Dr. Baker : Dr. Paxson's and my ideas are not apparently on the same point. In influenza the temperature rises suddenly, sometimes in six hours. A case of temperature at 102 with no other symptoms, but possibly a little stocking of the legs, and a temperature of 106 are two different things. I think in a case where the temperature is above 102 or 102 ½ it would be fair to put the animal under treatment for 24 hours. If it is influenza it will develop by that time, if not it will be normal.

Dr. Campbell : Suppose you know that a horse with a temperature of 102 has been in the stall and had no excitement, would you accept that horse?

Dr. Baker : I would draw the line as to the condition of the horse. Fever and influenza develop very rapidly; you see the temperature go up then within an hour to 106. I would not reject a horse that does not show any other suspicious symptoms but rise in temperature to 102.

Dr. Hughes : It would be well for us to arrive at some definite temperature. A horse with a temperature of 102 ½ is suspicious, but 102 is not. In a green horse there is a certain amount of indigestion present and excitement follows. This accounts also for the swollen legs we find. A horse with 103 should be rejected. I never take a horse's temperature any

more than I analyze his urine, and do not think that a horse with a temperature of $102\frac{1}{2}$ should be rejected. I would like to know whether 102 is a very abnormal temperature in the sale ring, at the Union Stock Yards—that is, take it in the morning and night. I know that the majority of these horses whose temperature I took varied between 101–102 every day.

Dr. Campbell: Did you find an animal in normal health 100 or below?

Dr. Hughes: I did.

Dr. Campbell: I find as a rule that my thermometer registers between 99 and 100, and I consider the horse then all right. Above that I do not, and by giving him drugs his temperature always goes down to 100. Has the size of the horse anything to do with it?

Dr. Hughes: I do not think it would in particular.

Dr. Baker: I have taken the temperature of a great many horses, and I have come to the conclusion that the normal temperature of the horse is about 100. Some German authority tested as many as 600 at a time and found the average 99.9 F.

Dr. Day: I remember in Wichita, Kan., I had a horse to treat that was then racing. This horse was suffering from throat trouble, and I was asked to examine him. I found his temperature to be 101. I told the owner that I did not think the horse suitable to race, but that he could try it. It would not hurt the horse. After the race, I saw the horse and found his temperature to be $105\frac{3}{5}$, and I made up my mind that he did something very harmful, but to my surprise next morning I found that the horse's temperature was but little above 100. I found all horses that I examined that had a temperature of a little above 100 or 101, especially race horses, after the exertion had a temperature as high as $104\frac{4}{5}$, but were all right again after a little rest. If we would reject horses that had no other trouble present but high temperature we would have to reject all these horses.

Dr. Robertson: I have had considerable experience with shippers that go into the yards to buy and sell horses. I have had them take horses out of my hands that had a temperature of 105 and coughed. They took them into the yards and sold them as sound. If the party that purchased such a horse would have taken his temperature after going out of the ring he would have necessarily detected that there was something wrong, and I have no doubt that passing so many horses through the ring without taking their temperatures has to a certain extent caused

a prejudice against such horses, as they often get sick very shortly after they are bought and taken to the barns. I knew of a hundred that passed through the ring that way. On the other hand, I have taken the temperature of horses after a trip of four to five miles and found them to be from 104-5. I recommend all such horses to stay in the barn till the next morning, and as a rule find their temperatures then to be normal. The excitement of the trip raised the temperature. If the temperature did not go down next morning I rejected the horse. Last week I bought a horse in the yards with a temperature of 102. I led him down behind a buggy, put him into the barn, took his temperature and found it to be 104. I left him in the barn till next morning, took his temperature then, and found it to be 101. In heavy horses, as a rule, I find that their normal temperature is between 101-102. My experience with heavy horses is, that if they quit eating they are very seriously sick. If this is the case, even if their temperature is but 102, we ought to commence treating them at once, as we can thus prevent serious illness. Some barns make it a rule to give all new horses that just come into the barn a little fever medicine. I think it is a good idea to take the temperature of all such horses that come from the yards.

Dr. Paxson : I would like the society to come to a conclusion as to what would be the highest temperature with which we could allow a horse to pass.

Dr. Robertson : I think 102 $\frac{1}{2}$.

Dr. Hughes : What is the normal temperature of the horse? I think 101.

Dr. Robertson : My experience is largely with these heavy draft horses. There were some whose temperature I took every morning, and found that it was very close to 102. I presume it was because, as a rule, they were in close confinement and had but little exercise. I always supposed that the normal temperature was 100. If anyone would ask me what the normal temperature of horses is, I would say in heavy horses from 101-102, in light horses about 100. I never bother my head if the temperature of a heavy horse is 102, and I pronounce him sound. In light horses I have not had so much experience, as I have not taken their temperatures so frequently. 100 I should judge would be considered the normal temperature of such horses.

Dr. Hughes : What is the normal pulse of a horse?

Dr. Pister : I find that heavy Percheron and Normandy

horses in this section of the country have a pulse of about 30-32 degrees. That is in heavy stallions. The pulse of all these horses varies very much. It varies from three to five beats. It makes a difference between country and city horses. The former are not apt to get so excited, hence their pulse is much lower.

Dr. Baker: I find as an average the horse's pulse is about 35-36. I have found many cases as low as 25-28 in draught horses.

Dr. Casper: Among thirty horses in the yards, I took the pulse of five and found it to average between 42-49.

Dr. Pister: I found in heavy draft horses in New York that the pulse varies between 36-45. I should suppose that anything between 36-45, where there are no symptoms of any other trouble present, should be considered normal. It is a hard thing, however, to set down any rule that would be actually a normal pulse.

Dr. Hughes: I think that the normal pulse is between 40-42.

Dr. Griener related his experience before the examining board of the City Civil Service Commission. A few of the questions asked are subjoined:

(1) How would you construct a patrol wagon?

(2) How would you construct a patrol box?

The Doctor became exasperated and refused to answer such questions, yet he received a mark of 76 per cent., and a former patrolman received about 99 per cent., and was appointed City Veterinarian. Meeting adjourned. JOS. B. CLANCY, *Secretary*.

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

The annual meeting of this society will be held in New York City, on the 8th and 9th of next month, immediately following the convention of the American Veterinary Medical Association, giving its members an opportunity to attend the dual event and to participate in the very elaborate programme prepared for that convention, including an educational feast the most sumptuous ever prepared for it, embracing the discussion upon the sanitary subjects presented at the Omaha meeting, about thirty original papers on very diversified topics, from the most practical theme to the highest points in State medicine, besides a pathological display of large proportions, and surgical clinics every morning. Aside from this, the members of the State Society are cordially invited to join their brethren

of the National Association in the various entertainments arranged by the local committee, and every inducement is put forth to secure a large attendance of members from every county in the State, as well as other veterinarians who are not and would like to connect themselves with the State Society. There can be no doubt but that of all times no practitioner in the Empire State can afford to absent himself from Gotham during the second week in September.

The place of meeting will be the assembly rooms in the Academy of Medicine occupied by the County Society, and it will be found both centrally located and well adapted for the purposes of the association.

The literary programme so far as completed is as follows:

Dr. W. L. Williams, Ithaca, N. Y., "Iodine in the Treatment of Poll-Evil and Fistulous Withers."

Dr. Veranus A. Moore, Ithaca, N. Y., "The Streptococcus and its Rôle in Comparative Pathology."

Dr. George H. Berns, Brooklyn, N. Y., "Quittor."

Dr. Roscoe R. Bell, Brooklyn, N. Y., "Shoulder Lameness in the Horse."

Drs. James Law and Veranus A. Moore, Ithaca, N. Y., "An Infectious Mycosis of the Lungs and Air Passages in Solipeds."

Dr. H. D. Gill, New York City, subject not announced.

Dr. Simon H. Gage, Ithaca, N. Y., subject not announced.

ASSOCIATION OF FACULTIES AND EXAMINING BOARDS.

Secretary Merillat reports the following interesting programme for the meeting of the Association of Veterinary Faculties and Examining Boards of North America, to be held in connection with the New York meeting of the American Veterinary Medical Association:

A. W. Clement, "State Examinations."

W. L. Williams, "The Teaching of Practical Surgery."

C. Barnwell Robinson, "Aims and Objects of an Association of Faculties."

S. J. J. Harger, subject to be announced at the meeting.

M. J. Reynolds, subject to be announced at the meeting.

Others to be announced later.

The doors will be open to all members and visitors of the American Veterinary Medical Association, instead of behind closed doors as in former years.

NEWS AND ITEMS.

DR. H. D. GILL, New York, is campaigning his fast pacer, "Beverley."

DR. THOS. CASTOR, of Buffalo, N. Y., is taking a short leave of absence to visit Philadelphia friends.

"IT IS A COMFORT TO RECEIVE THE REVIEW EACH MONTH."
—*L. D. LeGear, V. S., Austin, Tex.*

DR. JOHN P. O'LEARY, Inspector for B. A. I., at Boston, Mass., was united in marriage June 21 to Miss Lillian Wilson at Buffalo, N. Y.

DR. GEO. W. BUTLER, of Circleville, Ohio, has accepted the position of Assistant Inspector to the B. A. I., and assigned for duty at Milwaukee, Wis.

JOHN M. PARKER, D. V. S., of Haverhill, Mass., Secretary of the Massachusetts Live Stock Commission, is on a visit to Scotland, his native land.

E. H. BROWN, V. S. (McKillip, '97), is veterinarian to the port of Manila, Philippine Islands, under the U. S. Army. He reports rinderpest and foot-and-mouth disease prevalent in the islands.

MR. HARRY H. HULBIRT, of the B. A. I., stationed at Buffalo, N. Y., has resigned his position with that branch of the government to accept one in Uncle Sam's treasury at Washington, D. C.

E. B. ACKERMAN, D. V. S., Brooklyn, N. Y., is spending a month in the higher altitude of the Adirondacks in the hope of eliminating a laryngitis that has been troubling him during the late spring and summer.

THE KANSAS CITY VETERINARY COLLEGE has sent forth its very well arranged catalogue for the session of 1899-1900 and we are glad to hear through Dean Stewart that there is every prospect of an increased attendance.

WE acknowledge the receipt of an invitation to attend the tenth semi-annual meeting of the Illinois Veterinary Medical and Surgical Association at the office of S. H. Swain, Decatur, Illinois, Thursday and Friday, August 3d and 4th, 1899.

W. B. E. MILLER, D. V. S., of the Bureau of Animal Industry, at Garfield, N. J., has been suffering from septic poisoning due to the sting of an insect, and between that and the twinges of rheumatism he has had an interesting time throughout the month of June.

THE VETERINARY SERVICE ASSOCIATION sent letters to

almost every veterinarian in Greater New York, asking them to call at its offices to sign a contract to become its slaves, in each of which it says: "We have several applications in your location." We do not believe a single man of standing in the community will respond. For particulars, see editorial in this issue.

AGRICULTURAL COLLEGE AND EXPERIMENTAL FARM FOR NOVA SCOTIA.—An act passed at the last session of the Provincial Legislature authorizes the purchase of land for an agricultural college and experimental farm and the erection of suitable buildings, appropriating \$20,000 for the purpose. The college will take the place of the provincial agricultural school at Truro and the horticultural school at Wolfville.

DR. L. D. LEGEAR, of Austin, Texas, read a paper last month before the Texas State Farmer's Congress upon the subject of "Preventive Inoculation against Texas Fever." He has had extensive experience along this line during the past year, using the defibrinated blood from native stock. His experience has taught him that "when properly administered, and proper care taken of the animals, it is almost a sure preventive."

NEW YORK TUBERCULOSIS COMMITTEE.—*Albany, June 21.*—The special Assembly committee appointed by Speaker Nixon to investigate the spread of tuberculosis among cattle in this State, with a view of suggesting remedies to stem the disease, held its first meeting here to-day. The members of the committee are Assemblymen Witter of Tioga, Fancher of Cattaraugus, and Henry of New York. E. A. Callahan of this city, was elected Secretary of the committee. The committee will give public hearings here on Aug. 1 and 2, and at Syracuse on Aug. 3 and 4. The committee has \$2500 with which to prosecute its investigations.

SPRATTS PATENT EXTENDING ITS BUSINESS.—The business so well and favorably known to the veterinary public as Spratts Patent, manufacturing foods for dogs, cats and poultry, as well as other specialties, have found their premises, 245 E. 56th Street, New York, too limited for their increasing business, so they have purchased property near the Pennsylvania and Central Railroad depots in Newark, N. J., where they will have more room and larger accommodations for the storage of materials. They also intend to increase their ovens to double, and expect to be in full operation in their new factory before the end of the year.

DOES HEATING MILK DESTROY GERMS?—Sidney D. Myers, V. S., writes as follows to the *Breeder's Gazette*: "After reading your recent article, 'Cream on Pasteurized Milk,' the following question came into my mind: Does heating milk to 140 deg. Fahr., or even to 155 deg. Fahr., destroy all germs? I read in Friedberger & Fröhner's Pathology that the bacilli of tuberculosis are destroyed by a temperature of 85 deg. Cent., which, if I figure rightly, would be 185 deg. Fahr. I recently witnessed the slaughter of four hogs at the Ohio Agricultural Experiment Station that had been fed on milk from tuberculous cows. Two of them had been fed on the milk untreated, while the other two were fed on Pasteurized milk, but all of the hogs were found to be tuberculous."

RABIES IN WILD ANIMALS.—In answer to inquiries made as to whether wild animals were attacked with rabies, Dr. W. O. Dawson reports the following: "A jackal was kept for seventeen days in a large kennel, built for that purpose, well fed and looked after. On being let out in front of a pack of hounds, the animal was killed after a run of about thirty-five minutes. The leading hound, who brought him down at least 75 yards in front of the rest of the pack, was rather badly bitten, and six days after showed marked symptoms of rabies, and died on the third day after being attacked. This pack being always strictly kept away from other dogs, this being the only case of rabies, also the fact that the jackal had been to all appearances perfectly healthy, and kept in isolation for seventeen days, make the case rather peculiar."—*Veterinary Review*.

CATTLE FOR CUBA.—In accordance with terms of the recent order for the free admission of 50,000 head of graded cattle into Cuba within the next year, the Secretary of Agriculture has issued regulations covering their admission. To secure the advantages of the order cattle must be shipped either from Savannah, Mobile, New Orleans or Galveston, and satisfactory evidence must be supplied that they are not from the fever district as outlined by the department. The animals will be inspected by an inspector of the Agricultural Department at the port of shipment, "and if they are found to be graded cows and bulls, suitable for breeding purposes, free from disease, and immune from the fever tick, the inspector will issue a certificate embodying these facts, which certificate should accompany the cattle and be presented to the customs officer at the port of landing."

A VETERINARY MUNCHAUSEN.—Dr. J. R. Mitchell, of

Evansville, Ind., sends the REVIEW the following clipping from a woolly Western newspaper: "A recent report says a Kentucky horse was afflicted with a strange ailment, seeming to be almost wild with pain, and, being a family pet, every effort was made to relieve him. At last there appeared a young veterinary surgeon, just graduated, and he, after a lengthy examination, announced that the horse was afflicted with a peculiar disease of the teeth, that could be cured only by extracting them and grafting in new ones. It seemed cruel to take a horse in perfect health and pull out his teeth for such a purpose, but it happened the very next day a horse near by broke its leg and had to be shot. The young surgeon was on hand; he drew out the teeth of the dead horse, hurried back to the live horse, had it strapped up, and after an hour's hard work drew out the diseased teeth and inserted the new set. The operation was a complete success, and the horse is now careering around, no longer in pain, and possessed of a new and excellent set of teeth."

"THEORY AND PRACTICE."—Mr. A. C. Bostwick, who owns the fastest electric carriage in New York, and who was among the first to get one, said in the *Rider and Driver* office on Wednesday: "My motor carriage is broke down. Not a week passes but what something gets out of order with it. I'm sick of it, and wouldn't bother with another one if the makers should send it to me as a gift." That Mr. Bostwick knows the difference between horses and motor carriages will be readily granted. He has a stable full of horses and carriages of every description, and, with his celebrated four-in-hand, purchased from C. F. Bates, last year won the park team prize at Madison Square Garden Horse Show. It has been said of horses that they are dirty and perishable; in answer to the first accusation we should like to know what is dirtier than machinery when not kept properly cleaned. On the score of perishability, let us say that we know of no machine that would last one-tenth as long as the life of a horse if it were not being constantly renewed in parts.—*Rider and Driver*.

THE SURE CURE FOR SPAVIN.—"An illiterate 'hoss doctor' has of late sent me at frequent intervals murderous attacks upon good English which vaunted the miraculous powers of a spavin cure. The doctor seems to be a graduate and may have some knowledge of his profession, although the almost instantaneous cures claimed for his spavin annihilator are not in accord with the more gradual processes of nature as observed and noted by the teachers of veterinary science in the reputable schools. A

Preston horseman telling me of a trainer whom he had recently visited said: 'I found him putting on some of ——— spavin cure.' Then it occurred to me to write for the result, and I am just in receipt of the reply, which is as follows: "Yes, I have used ——— spavin cure. I call it a genuine humbug. It will scar—kill hide and hair—and will produce a heavy growth on any flesh it may be used upon. It did cure lameness, but the cure is worse than the disease.'" This would indicate that there is to be no revolution in the treatment of spavin. The wisdom of the ages is not to be overturned by awkward English and the destruction of tissue."—(*M. T. G. in Breeder's Gazette.*)

ADVERTISING WITH A VENGEANCE.—The following advertisement, clipped from an Illinois newspaper, was forwarded to us by a western correspondent, and occupied a double-column space, with large display letters for the principal lines: "Dr. E. H. Herring, Perry, Illinois, Veterinary Surgeon and Dentist. Graduate Chicago Veterinary College. Two Years Course. The branches taught are theory and practice of Veterinary Medicine, anatomy, cattle pathology, physics and chemistry, physiology, materia medica, helminthology, veterinary surgery and obstetrics, microscopy, histology, morbid anatomy, veterinary dentistry, gross pathology and bacteriology. Diseases and their treatment of all the domesticated animals. Remember I am no Quack Horse Doctor. I have no near relative who was a veterinary surgeon die and 'will' his veterinary knowledge to me. I do not ask the people of Perry to educate me; I paid my good hard money and took a two years' course in one of the best Veterinary Colleges in America. I practiced my profession at Mt. Sterling, Ill., for 6 years; so I have had the practical experience as well as the theory. Many bad cases will get well if given 'colored water,' and this is where the quack horse doctors make their 'mark.' A qualified veterinarian can save many valuable animals by his knowledge of medicine that the so-called veterinary surgeon (quack) would not even know what was the matter, but would give a few doses of medicine and look wise, but in spite of his wonderful medical skill the poor animal dies, perhaps hurried into eternity by a wrong dose of medicine. I say boldly that one cannot be a veterinary surgeon without a knowledge of the anatomy of the horse; (I have made two complete dissections of the horse) neither can one prescribe medicine successfully without a good knowledge of chemistry, physiology and medicine, and its physiological classification. If one doesn't know anything about medicine and the diseases of our domesti-

cated animals it is easy to fool one. In this way the quack horse doctor tells you a smooth story and at the same time looks wise and you take it for granted that he knows 'all about it.' Many people make a mistake by letting a sick animal go until it is too late before calling on a qualified Dr. and in this way lose valuable animals that could be saved if properly treated and taken in time. I have a full set of dental instruments for extracting, filing off sharp corners and cutting off long teeth. I will treat all cases and do dental work brought to me for half price for cash, and up to the first day of November and will make calls to the country in the same proportion. All I ask of you is to give me a chance to do your work. While I may not please all I am confident I can demonstrate to the public in a short time the superiority of my college education as a Veterinary Surgeon over that of any quack horse doctor who has 'picked it up.' When you or some member of your family gets sick you do not call in your neighbors or some quack doctor to treat the case, but you get a qualified M. D. Just so with your sick animal, you should get a qualified veterinarian to treat the case. It will be dollars and cents in your pocket in the long run. Yours for business, "Dr. E. H. Herring. Office, W. L. Sharper's Drug Store. Residence: Ed. Wade's property, 1 block east of the School Building. All calls promptly answered, day or night."

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BACK NUMBERS REVIEWS WANTED AND FOR SALE.

In making up my REVIEWS to be bound I am short of the following numbers: Vol. XIII, July, September, October (1889). As I cannot obtain these from the publishers I will give the regular rates or a slight advance, or will exchange any of the following which are duplicated in my file: Vol. XIV, October (1890); Vol. XIX, February, March, and April (1896). Address ROBERT W. ELLIS, D. V. S., 509 W. 152d Street New York City.

AMERICAN VETERINARY REVIEW.

SEPTEMBER, 1899.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

AN IMPORTANT EDUCATIONAL STEP.

On July 7th, the news was given to the daily press by Chancellor Henry M. McCracken, of the New York University, that a consolidation had been effected between the New York College of Veterinary Surgeons, the American Veterinary College, and the New York University, whereby the two veterinary institutions had become affiliated with the latter as its "Veterinary School," under the name of the "New York-American Veterinary College." The resolution of the University trustees authorizing this action upon its part is as follows:

"Whereas, New York University maintains the principle now generally accepted in America that each degree-giving professional school should be part of a university, both to promote science and to enhance the value of professional degrees. Therefore, this university consolidates with itself the New York College of Veterinary Surgeons and the American Veterinary College, this school to bear the name of the New York-American Veterinary College and to be on a like footing with the other six schools of the university."

In giving out the news of the important action taken, the Chancellor promulgated the following statement:

"These two schools have outranked in age all other veterinary schools in the country, and have educated more than 1000 veterinary surgeons. Like the veterinary school of Harvard University, and that of the University of Pennsylvania, this school is placed upon a strictly university footing. Co-ordination and co-operation with the University-Bellevue Hospital Medical College will thus be secured to the advantage of both schools, and of medical science, and to the promotion of the health of the community. In order to enter the school a student must have obtained forty-eight counts in a Regents' examination, this being considered the equivalent of a high school education. The Re-

gents have been gradually raising the requirements for admission to the professional schools, and in this I think they have performed an important public service. The education required now before a young man can commence the study of a profession is practically equal to the college education of forty years ago."

When the two veterinary colleges were asked to consider the proposition of affiliation with the University a joint meeting of the faculties and trustees of these schools was held, and the question thoroughly discussed, with the result that a committee was appointed to arrange the details of union. The first thing done by this committee was to ask for the resignation of each member of the faculties of both veterinary schools, thus making the organization of the new school absolutely free in the hands of the University, who avowed that it was their intention to establish in the city of New York the strongest veterinary school possible.

The following faculty was appointed, the institution with which each professor has been connected heretofore, if any, being indicated in parenthesis :

Henry M. McCracken, D. D. LL. D. (New York Univ.), Chancellor.

Alexander F. Liataud, M. D., V. M. (American Veterinary College), Dean, Professor of Anatomy, Clinical Surgery, Veterinary Jurisprudence, and Sanitary Medicine.

James L. Robertson, M. D., D. V. S. (American Veterinary College), Professor of Principles and Practice of Veterinary Medicine and Clinical Medicine.

Harry D. Gill, V. S. (New York College of Veterinary Surgeons), Professor of Principles and Practice of Veterinary Surgery and Clinical Surgery.

William J. Coates, M. D., D. V. S. (American Veterinary College), Professor of Anatomy, Clinical Surgery and Medicine.

Roscoe R. Bell, D. V. S. (American Veterinary College), Professor of Materia Medica and Therapeutics.

J. Elmer Ryder, D. V. S. (American Veterinary College), Professor of Obstetrics and Clinical Medicine.

Richard W. Hickman, Ph. G., V. M. D. (New York College of Veterinary Surgeons), Professor of Cattle Pathology and Meat Inspection.

J. Bethune Stein, M. D. (New York College of Dentistry and American Veterinary College), Professor of Physiology.

Wilfried Lellman, D. V. M. (New York College of Veterinary Surgeons), Professor of Helminthology and Canine Pathology.

John A. Mandel (University-Bellevue Hospital Medical College), Professor of Chemistry and Toxicology.

Edward K. Dunham, M. D. (University-Bellevue Hospital Medical College), Professor of Comparative Pathology.

William H. Park, M. D. (University-Bellevue Hospital Medical College), Professor of Bacteriology.

John A. Leighton, D. V. S. (American Veterinary College), Professor of Diseases of the Foot.

Julius Huelsen, Jr., D. V. S. (American Veterinary College), Professor of Sanitary Medicine.

Ernst J. Lederle, Ph. D. (New York College of Veterinary Surgeons), Lecturer on Milk Inspection.

Harry D. Hanson, D. V. S. (American Veterinary College), Associate Professor of Theory and Practice and Clinical Medicine.

George G. Van Mater, M. D., D. V. S. (American Veterinary College), Professor of Ophthalmology.

Charles E. Clayton, D. V. S. (American Veterinary College), Associate Professor of Clinical Surgery and Demonstrator of Anatomy.

Robert W. Ellis, D. V. S. (American Veterinary College), Lecturer on Zoötechnics and Veterinary Jurisprudence.

W. V. Bieser, D. V. S. (American Veterinary College), Demonstrator of Anatomy and Curator of the Museum.

Henry Henning, V. S., Assistant in Clinical Surgery.

The new school will open its first term on October 2, at 141 West Fifty-fourth Street, the building occupied for the past twenty-five years by the American Veterinary College.

What is the significance of this departure?

It is one more evidence of the steady advance of higher education for the American veterinarian. It means for the two old private schools—the pioneers of veterinary science on this Continent—perpetuation, elevation, and the opportunity to grow up to that standard which has been the dream and the ambition of those who have labored so long, so hard, and so lovingly to secure those ends. The REVIEW has in the past demanded justice for these struggling seats of veterinary learning because they needed a champion, and its conception of justice was that, while all efforts should be directed toward the elevation of the educational standard, no overt act should be committed by legislative aid which would crush them to the earth ere their ambitions could be fulfilled. The history of the private schools of this country, as a rule, is one of restless progress. Their records show that they have increased their facilities for teaching, their educational requirements for entrance and for graduation, and the length of their courses, just as rapidly as circumstances would permit, and there was nothing to indicate that the same

rate of progress would not be continued. When, therefore, legislation so inimical, not only to their prosperity and success, but to their very life, was sprung upon them, amounting almost to a demand to "stand and deliver," we entered our protest with as much energy as we possessed, and we are prepared to champion the cause of injustice to honest institutions to-day just as fervently. It has been stated by those who were instrumental in securing the laws which impinged so tightly upon corporate rights and moral justice that it was unavoidable; that the high standard or nothing was the choice; but we are told that the basis of all law is common sense, and it were better to await a time when that could prevail rather than commit a great wrong. However, when it was found that the sudden thrust of the new law meant extinction to every school in the State which depended upon their earnings for their sustenance, a committee went to Albany and laid the case before the representatives of the Board of Regents, who could not avoid admitting the seriousness of the situation, and they were appalled at the wrecks which were created by the workings of their law. As a result of that conference the entrance requirements were reduced from 48 to 24 counts for two years, and the limitation will expire with the close of the next college term, when it will leap back to the high rate. Under the reduced preliminary educational requirements the classes increased, but it was apparent that material progress could only be accomplished through a consolidation of the two schools and affiliation with a university. Therefore, when the powerful New York University held forth the inducement of its strength of fame and fortune, it was accepted. This having been accomplished, with a large faculty of experienced teachers, picked from the combined staffs of the three schools, in a city presenting the greatest clinical facilities that can be secured in any city in the country, and with the complete laboratory advantages of the University, a prediction of brilliant achievements for the new school is a safe one and it is a step that will redound to the great benefit of veterinary science.

In this connection, we beg to suggest to the Regents as

further fostering veterinary education in the Empire State that the number of preliminary counts be not too suddenly raised. It is 24 now; let it remain there for a few years. There is no danger of lowering the high standard set by them as the final outcome of their efforts. If in time the situation permits, a rise to 36 may not be hazardous, and possibly 48 could be safely undertaken by and by. But to fly back to 48 counts or equivalents in 1900 will be to retard the progress already made, and drive students without the border of this State.

We wish the new school success, and we felicitate the friends of veterinary education upon the prospects of its attainment.

THE "REVIEW" AND "THE JUBILEE."

The important veterinary conventions which are being held in New York City as this issue of the REVIEW is speeding by many mail routes to its readers in every State of the Union, will afford much interesting and profitable reading matter for several months. In the first number following the meetings (October) there will be given a graphic account of the entire proceedings of all the associations, written just as they occur, and which is intended to give those debarred from the pleasure of being present a clear, concise, and complete conception of the transactions, besides a number of the most important papers presented to the various meetings. These will be followed in subsequent issues by all the documents read that can be obtained, carrying out our cherished ambition to have REVIEW readers the best informed upon all matters of general professional interest.

INAUGURATION OF THE ILLINOIS LAW.

The Illinois State Board of Live Stock Commissioners, with the approval of Governor Tanner, have appointed M. H. McKillip, M. D. V. S., Jas. Robertson, D. V. S., and C. H. Merrick, D. V. S., to constitute the Board of Veterinary Examiners created by the Illinois Legislature last winter. Prof.

McKillip is President of the McKillip Veterinary College, Dr. Robertson is President of the Chicago Veterinary Society, and Dr. Merrick is an Assistant State Veterinarian practicing in Okawville, Ill.

The REVIEW has seen little in the career of Governor Tanner in the past to commend from a veterinary standpoint, and it is not an admirer of the Illinois veterinary law. It, however, believes that the practical working of that law is saved from disgrace, as the character of the new appointees is of the highest, and a guarantee that no act will be committed which is not in the interest of the honest administration of the spirit of veterinary morality and progress. We congratulate the veterinarians of the State, therefore, upon the promise held out through the *personnel* of the new board.

HONORS FOR DR. LIAUTARD.

Dr. A. Liautard, co-editor of the REVIEW, is enjoying a season of well merited honors. As a fitting testimonial to the esteem in which he is held by the alumni of the school which he has guided for twenty-five years, they are to present him with a loving cup at the silver anniversary of the A. V. C. At the organization of the "New York American Veterinary College," the amalgamated veterinary school of the New York University, he is chosen dean of the faculty, and to crown it all news is received from Baden-Baden that he was elected Vice-President of the Seventh International Veterinary Congress which was in session there during the early part of August. We hope to be able to give our readers a comprehensive report of the proceedings of the Congress in the October issue.

A NEW TREATMENT FOR AZOTURIA.

Dr. W. A. McClanahan, of Redding, Iowa, contributes a very interesting and valuable report of a new treatment for azoturia in this issue of the REVIEW. After all that has been written upon this mysterious malady of the horse we are as

much in the dark as to its therapy as when the disease was first recognized. A contribution to this aspect of the subject will be eagerly welcomed by practitioners everywhere. The author was induced to administer the iodide of potassium internally in large doses through the pathological conclusions of Prof. Lignière, published in the February REVIEW, in conjunction with the latest treatment for parturient paresis.

THE successful candidates at the recent examinations of veterinarians for first rank in the United States Army were Veterinarians McMurdo, Lemay, Treacy, Griffin, Lusk and Plummer. Poor Treacy, who labored so long and hard for the cause which made the examinations possible, lived just long enough to learn that he had passed. While the standard of the service will be fought for at the next session of Congress with renewed energy, the counsel and help of the deceased will be sorely missed.

ORIGINAL ARTICLES.

TUBERCULOSIS, ITS CONTROL AND ERADICATION.

BY G. A. JOHNSON, D. V. M., Inspector B. A. I., Sioux City, Iowa.

Read before the Sioux City Valley Medical Association, January, 1899.

In preparing, for your consideration, a paper on "Tuberculosis, its Control and Eradication," I appreciate the fact, that to treat the subject systematically and thoroughly would be to compile volumes, instead of a paper, appropriate for such an occasion as this. Therefore, I shall but briefly consider some of the more salient and important phases of the subject.

Reasoning from the premises that tubercular lesions, wherever found, are the results of the action of the tubercular bacillus; and, further, that the tubercular bacilli from whatever source, be it man, the dumb beasts, fowls or fishes, is one and the same organism.

I contend that the affection is transmissible from one species to another, or the others, under favorable conditions. In order to more fully substantiate this view, let us briefly consider this germ :

From whatever animal the tubercular bacilli are derived they present analogous if not identical points as follows : 1st, morphology ; 2d, staining peculiarities ; 3d, vitability and destructability ; 4th, the lesions produced ; 5th, the tendency to a slow evolution of the morbid process ; 6th, the character of artificial cultures ; 7th, the character of the chemical compound, tuberculin, formed by the germs in their evolution ; 8th, the ability to adapt itself to its environments ; 9th, the result of inoculation.

At one time it was contended that there was an essential difference between the tubercular bacilli found in the avian and bovine species, but recent experiments have demonstrated this to be erroneous.

This apparent difference beautifully illustrates the ability of this organism to adapt itself to its environments. One of the principal differences in this case, so far as this organism is concerned, is the normal temperatures of the bovine species, about 101° F., and of the avian species, about 107° F.

It is a well established fact that the tubercular bacillus has marked powers of resistance, under various conditions as to heat and cold, dryness and moisture, and as shown by its resistance to chemicals, and the wide range of species that fall victims to its ravages.

From this standpoint it might at first sight appear very unreasonable to advocate the idea of eradicating or even controlling such a widespread malady. But from a practical standpoint it does not assume such a magnitude.

While it is a fact that none of the higher animals are absolutely immune, the majority of species are so rarely affected that in attempting to devise ways and means of controlling or eradicating the disease, we need pay but little attention except to the two species, man and cattle.

I will not go so far as to say, as some have, that where there are no cattle there is no tuberculosis, but I will venture this assertion that could we eradicate the disease from man and the ox, and keep them free from it, that it would be but a matter of time when tuberculosis would be known in history only. And if we could eradicate the disease from cattle we would certainly have obliterated one of the greatest, if not the primary source of infection.

We have but little trouble in securing the enactment of laws and regulations for controlling the spread of diseases that are actively contagious and run a rapid course. But with tuberculosis the conditions are different; the most complicating phase of the entire subject is the slow and insidious character of the disease.

As you are all familiar with tuberculosis as found in the human patient, I will confine my remarks to a brief consideration of the disease as found in cattle.

Tuberculosis of the ox is one of the oldest diseases mentioned in veterinary literature, and to-day it is the most common. Laws forbidding the use of the flesh and milk, and providing for the destruction of affected animals, date far back in the middle ages.

The opinions of the medical fraternity regarding the cause and nature of the malady have varied greatly at different periods, and very largely influenced the laws and regulations in vogue. From the sixteenth to the eighteenth century, the disease was held to be identical with syphilis in man, and stringent measures compelling the destruction of tuberculous animals, so far as known, were enforced. But when this view was proven erroneous the laws were annulled or modified.

During the present century sentiment again turned against the disease, and much progress has been made, especially since 1882, when the celebrated Dr. Robert Koch, by his discovery of the tubercular bacillus, placed the subject on a sound basis.

ETIOLOGY.

The direct or primary cause is the tubercular bacillus, while

the indirect or predisposing causes are many, among which may be mentioned the surroundings, such as poorly ventilated, poorly drained stables, confining too many animals in a limited space, in-and-in breeding, the over-production of milk, and in fact any condition that tends to vitiate the germicidal property of the blood.

The principal modes of infection are, inhalation of the germs suspended in the air, and alimentation of substances contaminated with the germs, as the flesh and milk of tuberculous animals, especially the latter.

PATHOLOGY.

Whenever a sufficient quantity of live tubercular bacilli find a lodgment in any tissue, they soon begin to multiply. Their presence and activity act as an irritating foreign body, which nature endeavors to remove or limit through the process known as inflammation; this results in the formation of small granular bodies, known as tubercles; these coalesce and form masses varying in size from that of an ordinary pea to a mass two or three inches in diameter; degenerative changes within the tubercle take place early, so that the older tubercle is composed largely of a disintegrated mass that contains more or less lime salts.

In the ox, the tendency is to the formation of a strong, thick, limiting membrane, which tends to prevent the formation and escape of liquid pus.

The germs may find lodgment and produce morbid lesions in any tissues of the body, but the lungs and the lymphatic system are the most common seats of the disease, while the muscular and adipose tissues are rarely affected.

SYMPTOMS.

The symptoms must of necessity vary according to the seat of the affection. Owing to the slow and insidious character of the disease, the absence of fever, the inability of the ox to make known any minor aches and pains that it may suffer, and the slight interference with the normal functions of the various organs of the body, it is almost an impossibility to physically

detect the disease in the earlier stages. In fact, no positive diagnosis can be made on physical examination except in the latter stages of the disease.

Large numbers of cattle, that are sleek and fat, and apparently in the best of health, are found on slaughter to be affected with the disease in a generalized form, even to such an extent that it seems almost a miracle that the animal could live at all, let alone being fat and sleek of coat.

If the lungs are affected, there may or may not be an accompanying cough. There may or may not be an enlargement of the lymphatic glands lying near the surface of the body and accessible to digital examination. All of the authorities who have written on this subject except those having written during the past three or four years, have given a long list of symptoms whereby the disease could be diagnosed; such as, a dull short cough, which is more frequent after feeding, drinking or movement (as are most coughs affecting cattle); labored respiration; loss of appetite; loss of flesh; paleness of the mucous membranes, staring rough coat; diminution of milk secretion; debility, and, lastly, but by no means least, the surroundings and history of the case. But we should remember that the majority of these symptoms are not manifest until the disease has nearly run its course.

As regards the control or eradication of tuberculosis in cattle, very little can be accomplished by relying upon physical diagnosis; about all that can be done by this method is to destroy the advanced cases a little sooner than nature would accomplish the same end. For these reasons very little progress was made until within the last decade.

You all remember what a thrill of excitement spread over the entire civilized world when Dr. Koch announced that he had hopes to believe that he had discovered a cure for tuberculosis. With what eager expectancy many physicians secured some of the magic fluid, and how deep was their chagrin to find that a reaction, that is, an hyperthermic condition and other nervous phenomena, followed each injection in the tubercular patient. It

was early demonstrated that, as a curative remedy, tuberculin is a failure. But the hyperthermia that constantly followed its administration to tubercular patients, suggested its use as a diagnostic agent for tuberculosis. These indications were eagerly followed by many investigators who were interested in the control of tuberculosis in cattle, and who had up to that period been baffled because of their inability to diagnose the disease in its earlier stages.

During the last few years the action of tuberculin on cattle has been studied in thousands of cases by many of the best investigators of the day, all of whom pronounce it one of the most reliable diagnostic agents in the category of medicine.

By the proper use of tuberculin it can be determined to almost an absolute certainty whether an animal is or is not affected with tuberculosis.

Yet we are not making the progress that we should towards eradicating or even controlling the spread of this disease.

There are two reasons for this state of affairs ; firstly, the ignorance of the general public upon this subject ; and, secondly, the fear of financial loss by many of those who have a knowledge of the conditions. The first steps to be taken if we would accomplish any permanent results, is the education of the general public to a just appreciation of the dangers that constantly attend any spread of this disease, and the enactment of equitable laws bearing on the subject.

THE POSITION OF THE PHYSICIAN.

As physicians you have it within your power to wield an immense influence for good or for evil along both these lines. Good results would soon be manifest if each physician would, at opportune times, discuss this subject with his patrons, pointing out to them the dangers of the use of the meat and milk of tuberculous cattle, and suggest that milch cows should be tested with tuberculin as a protection to the public, and especially the family, and to prevent further loss to the herd by the spread of the disease.

It has been my experience that where people have become

fully acquainted with the facts regarding the transmissibility of tuberculosis that they are anxious to have their cattle tested ; especially is this the case where the family is supplied with milk from one or two cows of their own.

As regards legislation, the physician whose acquaintance will permit can do more or less good by socially discussing the subject of tuberculosis with any member of the state legislature. These men must be educated along these lines before they are capable of enacting just laws.

LAWS.

What we should have in the way of legislation is a law that will provide for thorough and competent meat and milk inspection. The meat inspection should include market inspection relative to sanitary conditions and abattoir inspection similar to that maintained by the federal government.

The dairy inspection should provide for the tuberculin test and for thorough inspection of the cows at frequent intervals ; the sanitary condition of the stables ; the food and water supply ; the cleanliness of the milk utensils and the health of the attendants.

From a sanitary standpoint, any regulation that does not provide for the proper inspection of the cow must of necessity fall far short of perfection. If the milk is contaminated when drawn from the cow it will go to the consumer contaminated. It should prohibit the use of the milk of cows that are affected with any disease, as tuberculosis, anthrax, variola, etc., that will render the milk unwholesome. No person suffering from scarlet fever, typhus fever, tuberculosis, etc., should be permitted to work with the cows, or handle the milk or milk utensils.

The practical object of such a law would be to prevent the use of the food products of tuberculous animals, because it is by far the most common of bovine diseases.

Much more could be accomplished through the State Veterinarian's office under our present laws, if the legislature would only appropriate a reasonable amount of money for this department.

DISPOSITION OF TUBERCULOUS CATTLE.

The disposition of tuberculous cattle, as revealed by the tuberculin test, is a very important matter, both from a sanitary and financial standpoint. At the present time the two systems most in vogue are, first, the Bang or Danish method, by which affected animals are kept isolated for breeding and dairy purposes. By this method the calves are taken from their dams and reared on the milk of healthy cows, and the milk is pasteurized; that is sterilized, and then placed on the market. While by the second method all affected animals are immediately destroyed and the owner compensated for them. In other words, the authorities buy the affected animals of the owner and then destroy them.

It occurs to me that a combination of these two methods affords the best solution of the problem. In case of animals valuable for breeding purposes, follow the Bang method, while common stock could be isolated until fat enough for market, then slaughtered under strict inspection, where those that were so slightly diseased as not to affect the meat for food would be passed and those where the disease had advanced to a degree to render the meat unwholesome would be destroyed. By this method the owner would receive what his cattle are actually worth, and the authorities would be relieved of a great financial burden. Immediate destruction is the only remedy for advanced cases.

Is the disease in cattle increasing in this State (Iowa)? Most assuredly it is. A few years ago it was rarely seen on post-mortem, now it is frequently seen, while the tuberculin test has demonstrated that as high as 60 per cent. of some herds are tuberculous. Some authorities claim that under the sanitary precautions now in vogue relative to tuberculosis in the large cities, the disease has decreased 36 per cent. in man during the last ten years, but no estimate is made as to what per cent. of this decrease is due to such meat and milk inspection as is now in force in most of the larger cities.

The seat of the morbid lesions as an indication of the mode of infection.

I am of the opinion that too much credence is given to the theory that the seat of tubercular lesions are indicative of the mode of infection.

If we reason from analogy it is at once apparent that the theory is misleading. Take for illustration small-pox, measles, mumps, Asiatic cholera, bubonic plague, yellow fever, etc. ; these are bacterial diseases that are transmitted by inhalation, yet in none of these diseases are the morbid lesions confined to the air passages or the lungs ; in fact, these organs are not affected except as a complication of the disease proper. Again, syphilis is communicated by cohabitation, yet the morbid lesions are not confined to the generative organs ; while anthrax and black-leg of cattle are usually transmitted through contaminated food, but the morbid lesions are not confined to the digestive system.

On the other hand, laboratory experiments do not fully agree with this theory.

Why should this theory apply to the tubercular bacillus so much more forcibly than to most other organisms of a similar nature ? While the solution of this phase of the subject remains to be worked out, there are, at present, but few reasons except theory for asserting that pulmonary tuberculosis is always the result of an infection through inspiration.

Up to the present time meat inspection has received more attention than has milk inspection. But I am of the opinion that milk is a greater factor than meat in the transmission of tuberculosis. My reasons for this view are, first, that the milk frequently contains the germs, especially when the udder is tubercular, whereas the muscular tissue is rarely affected ; and, second, that meat is usually cooked before being eaten, whereas large quantities of milk are consumed in the raw state, especially by children and invalids.

I do not deem it advisable to treat this matter in such a manner as to create any widespread alarm, thereby causing unnecessary anxiety ; rather take a little more time and stand on a firmer basis.

In conclusion permit me to again mention the important

position you occupy in relation to this subject. As physicians are you not to a certain degree guardians of the public health, and is it not a duty incumbent upon you to educate your patrons to a just appreciation of the dangers that lie hidden from view in the meat and milk products of tuberculous cattle?

In compiling this paper I have consulted such authorities as were at my disposal.

A NEW TREATMENT FOR AZOTURIA IN THE HORSE.

BY W. A. McCLANAHAN, D. V. M., REDDING, IOWA.

This is a disease that I have studied a great deal, because I was convinced that all old-line treatments did very little, if anything to check the progress of the disease. The only good it did was to keep the excretory organs open, so as to get rid of the poisonous principle, whatever it might be, as fast as possible.

I always dreaded to have a man come into my office and give me the symptoms of a case of azoturia, as I do with any disease that we have no successful treatment for.

I read with much interest the article in the February number of the AMERICAN VETERINARY REVIEW by Prof. Lignière, on the new theory of the cause of this trouble. And as Schmidt's treatment has proven to us that we were mistaken in the cause of parturient paresis, I thought we might be also mistaken in the cause of azoturia. I was much disappointed that Prof. Lignière did not have more for us on treatment.

So I began to think what I would do in my next case. I thought that if it was caused by a germ in the subarachnoid space, an internal antiseptic would be indicated. So I decided to give potassium iodide in large doses for its antiseptic effect.

It was but a few days when an opportunity came to try it. It was a horse that had taken azoturia while going home from town. The owner lived about one mile out. It came on about

6 o'clock P. M. I could not go then, but gave the owner some old line treatment and instructed him to let me know if no better in a few hours. I was called out to see the animal between 9 and 10 o'clock P. M., and found it able to rise with some help, but it would not stand long. The owner said it was getting worse fast. From my past experience I decided there was very little hope for it. I drew the urine and gave four drachms of pot. iodide in about eight ounces of water as a drench. In about fifteen to twenty minutes that distressing appearance, common to all bad cases, disappeared. I left four drachms more of pot. iodide, with instructions to give it about 4 A. M. if worse. The animal was better, so the dose was not given until 7 A. M. From that time the animal made rapid progress, and in two or three days it was at work again.

The next case was a fine horse in the feed stable here, being prepared for market. It took azoturia while it was being exercised about town. I was called as soon as it was noticed. It showed very distressing symptoms. I immediately gave four drachms of pot. iodide in eight ounces of water as a drench, and drew the urine. In fifteen minutes the animal began to get easy. In four hours I repeated the dose. In twelve hours it was hard to tell that the horse had been sick.

The third case had been ridden about one and a quarter miles after the first symptoms appeared, and I did not see it for about two hours after it first took sick. I gave four drachms of pot. iodide. The horse began to get easy in fifteen to twenty minutes. I had the dose repeated in two hours. The next day the horse was taken home. All of these cases made very rapid recoveries.

Now, three cases are not enough to prove the treatment a specific, but with such results as I had, compared with ordinary treatment, proves to me that there is something in it. And as I do not have many cases of this in a year I report it so that others can try it, and I hope every one who does so will report either to the REVIEW or to me, so that we can compare notes and if it is a success, perfect the treatment.

VETERINARY INSPECTION OF BREEDING STALLIONS.

BY W. L. WILLIAMS, V. S.,

Professor Surgery and Zoötechnics, New York State Veterinary College.

Paper read at the National Horse Breeders' Meeting, at Chicago.

Civilized governments throughout the world have always endeavored by special or what we might call "class" legislation, to afford certain protection or bestow more or less important favors upon agriculture, because from this source civilized man draws his first prime necessities of life, food and clothing.

In its widest sense, agriculture includes the breeding and rearing of plants and animals, the first being fundamental and necessary to the existence of the latter.

The complexity of agricultural operations gradually increase from the lower plant production to the highest forms of domesticated animals, the pinnacle of agricultural pursuits being reached in horse breeding.

Modern advancement in locomotory devices has only served to elevate horse breeding to a yet higher plane, steam, electricity, and other mechanical forces tending rapidly to eliminate the lower classes of horses, or render them valueless without materially affecting the usefulness of the higher types. Recently there was abundant demand for any type of horse, so that a breeder could sell inferior animals at remunerative figures and the higher classes at a great profit. Now, the breeder cannot find market for culls, and needs rely wholly upon superior animals, and the production of these with sufficient uniformity is the task at present facing him.

The ideal breeder's horse of to-day is an animal of the genus equus, possessing a sufficiency of power, speed, endurance and beauty, combined with a degree of intelligence fitting him to largely accomplish his work without detailed human supervision, and capable of becoming a sympathetic friend and companion to man. With the latter qualities, steam, electricity and compressed air do not enter into competition, but the destruction of value of low grade horses increases the complexity of

breeding and renders horse breeding by far the most difficult of all agricultural pursuits, and correspondingly it offers to the successful breeder the greatest pleasure and profit.

It affords the freest field for the application of human intelligence to the production of an animal pre-eminent in beauty of form, symmetry of motion, endurance, obedience, intelligence and affection.

It would at once appear that if national aid be advisable for the promotion of agriculture, horse breeding should be highly favored as compared with other branches of agricultural industry, and so we find many European nations maintaining permanent breeding establishments, not only for keeping up directly the quality and number of horses within the realm, but as a great object lesson and educator to civilian breeders, and to this they add official inspection of private stallions, approving under various plans only those which are worthy. The value of official approval of stallions, when properly and intelligently applied, must appeal to all.

So far as we know it has scarcely been attempted in this country, and what has been done has been fragmentary and of little or no enduring value.

Horse shows have at times employed veterinarians to superficially inspect and exclude diseased animals from the show ring, and some agricultural fairs have resorted to a similar plan, yet notoriously defective animals are permitted to compete for and carry off important prizes, though their defects are transmissible to their progeny.

A weak provision in many prize lists directs that no unworthy animal shall receive a prize. The unworthy animal has no right in the show ring nor in the show stalls, unless conspicuously labeled "defective."

If such abuses prevail at shows and fairs, which are intended as popular educational institutions, how much more mischievous is the free license to use any stallion for public stud service without regard for individual merit or ancestral history, and yet the only way to curb these official abuses is by proper inspec-

tion of such a character that approval will be worthy of and command public confidence, and the absence of it will diminish or destroy the power for evil in the defective animal.

Much remains to be done ere official inspection can be rendered widely applicable.

Whatever other judgment need be exercised in selecting a breeding stallion, it is pre-eminently important that he should be inspected as to soundness, and his ability to beget progeny capable of performing their destined work without becoming unsound.

Evidently this work should be performed by a veterinarian.

Generally his labors are limited to saying that a horse is "sound" or "unsound," so that a defective stallion with a curby hock which he will transmit to his progeny, but which in his own case has been tenderly guarded by permitting little or no hard work, is passed as "sound" and permitted to compete, while a well-formed hock, which owing to some overwhelming strain has developed a small curb, is called "unsound" and barred from the breeding ring.

Numerous parallel cases could be cited to show that a stallion should be barred from show ring and from stud, not because of unsoundness, but because his progeny when worked, will probably be unsound.

In providing official veterinary inspectors for breeding stallions, the first obstacle confronting us is the scarcity of competent veterinarians for the work.

Many of our veterinary schools draw their students from uneducated classes, and after a hurried course of instruction of eleven or twelve to eighteen months actual attendance at college, graduate a man who it would require the labors of an expert commission to determine if he were a veterinarian or a horse doctor. They have had neither theoretical nor practical training in the higher science of zoötechnics, their time having been all consumed in a hurried cramming of data upon the symptoms and treatment of disease.

Agricultural colleges have done something to aid, but could

do no more. They are maintained at National and State expense and are required to teach agriculture, including the physiology, hygiene and diseases of domestic animals.

While several of these colleges maintain excellent courses of instruction in the breeding and handling of cattle, sheep, swine and poultry, and keep high-class animals on the farm to serve as object lessons, no such plan with regard to horse breeding has been brought to our notice.

Our preceding remark that horse breeding is the most difficult of all agricultural pursuits may serve to explain in part.

In recent years few veterinary colleges, having courses of three years of nine months each and requiring of students high academic training before admission, have been founded, notably in connection with great universities, where by amalgamating agricultural teachings on stock breeding with zoötechnics from the standpoint of the veterinarian, joint courses have been instituted which will in time accomplish good results, though lacking yet the material for object lessons in the science of horse breeding.

If the nation or some of the states would found well-appointed studs in affiliation with agricultural colleges and under scientific veterinary supervision, much could be learned and taught which would exert a lasting influence on horsebreeding in the United States, and would perhaps do more than any other force to render effective the official inspection of breeding stallions.

With such material for object lessons, a course in horse breeding could be devised consisting, besides other fundamental instruction, of history of breeds, the influence of food, climate and soil upon size, form, endurance and decay ; of defects which tend to be transmitted from parent to offspring and which would probably interfere with the latter's usefulness ; which diseases or defects are hereditary, which are not.

Many people are not aware of the utter confusion prevailing as to which diseases are hereditary and which are not.

The so-called "moon blindness" is generally said to be hereditary, but if an affected animal, not yet blind, be transferred

from the Mississippi Valley to the Rocky Mountains, it recovers, and its progeny fails to "inherit" the malady.

Rickets may cause ringbones and spavins in progeny of the best horses extant, but place the affected animals under non-rickety environments and their progeny do not inherit spavin. Yet careful study would probably show that heredity frequently exerts an influence in producing blindness and spavins. Which of the blind, spavined or ringboned animals are "sound" as breeders remains to be determined, and these questions should receive due investigation. If we by ignorance or abuse render an animal "unsound," the justice would be more poetic if the owner were barred from the breeding of horses, rather than that the wronged animal be condemned, and to a degree such a breeder excludes himself by making his efforts financially burdensome.

By a determined effort and hearty support efficient inspectors could soon be procured.

The chief objects to be attained by efficient veterinary examination of stallions would be to encourage the use of high class sires and to repress the inferior ones.

With many special breeders official approval of stallions by competent inspectors is quite superfluous, as they already know fairly well a good horse.

But the great mass of horses are and must always be bred and raised by farmers who keep but few mares and put them to the double use of breeding and working. This is the economical method of breeding, as the colt at weaning time has cost the owner but little beyond the stallion fee. It is to this class that the guidance of the efficient veterinary inspector is of greatest advantage. As a class, these farmers are not good judges of stallions—they see too few of them and study the subject too little.

In the recent horse-breeding craze, they like many would-be professional breeders, were led astray in many ways.

Among some breeds the fact that a sire had been "imported" was a sufficient guaranty, though the animal might have been

"imported" from an adjoining county and given a French, Scotch or Belgian name, as might best suit the conformation of the horse or the whim of seller or buyer. Many believe that any stallion grown in France or Scotland and having made the trip across the Atlantic, was good enough for breeding purposes and required no further guaranty.

Many horses unfit for working purposes in France were sold cheap by their owners and shipped to this country to "improve" our stock, and on that account admitted duty free.

Proper veterinary inspection should exclude these, either at the port of embarkation or the port of entry, and no stallion permitted to enter from a foreign country except upon such examination added to any pedigree qualifications which it might be fitting to impose.

In this way we would prevent imposition upon breeders, as well as the evasion of tariff laws. Not only should a defective stallion not be permitted to enter duty free, but he should not be allowed to enter at all.

Equally gross errors occur in home bred animals, even in the trotter, which is purely American. Because of illustrious ancestors, however remote, a stallion was thought qualified as a sire, regardless of defects which would totally unfit him for any legitimate use in this country where beef is cheap. During the recent boom, trotting stallions with long pedigrees were kept for public use at such figures that had he been castrated and placed upon the best markets of the country, would not have sold for the price of four service fees.

Some laws have even been enacted, permitting such stallions a state license upon pedigree alone, thus entrapping the state into a quasi approval of the animal wholly upon pedigree, though bearing serious defects which would unavoidably be transmitted to his offspring.

In our judgment then veterinary inspection of stallions should be based primarily upon the fitness of such animals to sire sound foals, which would remain sound at their allotted work.

The details of a plan would vary in different communities.

The element of soundness or absence from grave defects should be made a part of an animal's pedigree, and so far as practicable veterinary inspection should begin early in the career of a foal destined as a breeding stallion.

This may seem superfluous to some, but a few illustrations will make the desirability clear.

We not infrequently see young foals with scrotal or umbilical herniæ, (scrotal or navel rupture) which in some cases persist and lessen the animal's value greatly, and at times compromise its life. These tend to disappear with age, so a stallion of breeding age may be apparently free, but his get will very probably show his defect.

The same is true with cryptorchids or "ridglings," the hidden testicle sometimes passing down to its natural location at two or three years old, but the defect is nevertheless present in the constitution and may be transmitted, rendering colts difficult of castration and multiplying ten-fold generally the cost of that operation.

The only way to avoid these consequences to the greatest degree is to know the condition of the parent as a foal, and let such defects become a part of its ancestral history.

In other cases disease or defects may develop or become apparent with age, rendering veterinary inspection of the mature stallion no less indispensable, and indicating that such inspection should have as wide a range as possible in the life of the animal, and during his active breeding career should be frequently repeated. By somewhat frequent veterinary inspection, the spread of contagious diseases from stallions to mares may at times be limited or prevented.

We would suggest as an outline for a foundation for efficient veterinary inspection of stallions :

The encouragement of higher, more technical education in relation to horse breeding, illustrated by well appointed breeding studs, under efficient veterinary supervision, the results in these studs as to fecundity, soundness, excellence and longevity to be fully published.

The appointment by proper authority of official veterinary inspectors of high education and efficiency, and clothing these with ample power to do effective service.

The exclusion of defective breeding stallions from foreign countries by rigid inspection at ports of entry.

The periodical inspection of all breeding stallions, whether of domestic or foreign origin, and the prompt condemnation of all such as may at any time develop defects or disease which may be transmitted to their progeny.

The procuring of such breeding laws as will favor the use of approved stallions, either by a state subsidy to them or the exclusion of condemned stallions from public service, or by a sufficient per capita tax upon the defective animal, with freedom from such taxation upon the approved animal.

The exclusion of defective stallions from horse and agricultural fairs, allowing them neither in show ring nor in show stalls.

Such a scheme, we believe, would tend to the diffusion of knowledge regarding the science of horse breeding, and would found an authoritative and reliable standard by which non-expert horse-breeders could measure the value of a given sire.

We have already established precedents for laws regarding the repression of undesirable breeding animals, there being at present in many states a differential per capita tax on dogs, males and spayed females, carrying a minimum tax, while entire females, which are undesirable for social or economic reasons, are required to pay a maximum tax, in order to discourage the keeping of inferior and improperly cared for animals, and thus tend to limit the production of inferior dogs.

NOTES ON HERMAPHRODITISM.

BY G. W. BUTLER, V. S., MILWAUKEE, WIS.

Thinking the following notes on an hermaphrodite would be interesting to the readers of the REVIEW, I herein enclose them for publication :

A bovine, about two years old; head resembled that of a bull-stag; possessed the desires of a bull, and was reported as having been a nuisance when running with female cattle. The external genital organs, however, resembled those of the female, with some peculiarities worthy of note:

At the inferior commisure of the vulva there was a projection which directed the urine upward as it flowed from the animal and proved to be a false penis, the end of which presented two false openings about an inch deep, they being divided by a prominence, the whole resembling to some extent the penis of the horse. The animal being killed for beef the following abnormalities were found:

The false penis was composed of dense fibrous tissue and was doubled and rolled upon itself and firmly attached to the ischial arch. When the tissue which held its folds together was severed and the organ stretched out it measured about eight inches in length. The opening into the vulva and vagina was only large enough to admit the index finger, and the length of these two organs combined was only three and one-half inches, the meatus urinarius being at the extreme anterior part of the vagina, immediately below the os uteri. The body of the uterus, including the neck, was one inch in length and each horn extended three inches from the body to a lobulated mass which represented the ovaries. There was no line of demarcation between the horns and fallopian tubes and the tubes led directly into the lobulated ovaries, and divided into numerous small channels, which branched off at right angles. In the abdominal cavity, near the internal inguinal ring, embedded in fat, were two testicles, which were about the size of a small hen's egg and nearly normal in appearance. The tunica albuginea and epididymus were quite normal, but the tissue proper was darker in color and softer than the normal. The cords, which were composed of a fibrous and mucous coat, the latter being corrugated, extended from the testicles to the body of the uterus, entering very near to where the horns branched off. They were extremely small near the testicle, not larger than a small knitting needle, in-

creased in size to their middle, and again became smaller as they approached the uterus. I think they were pervious throughout their entire length, although the channel representing the vas deferens was so very small that it was difficult to follow it. The vesiculæ seminalæ were absent.

MODERN VETERINARY PRACTICE.

BY M. H. REYNOLDS, M. D., V. M., MINNEAPOLIS, MINN.

Read in the Section of Medical Education, Jurisprudence and State Medicine of the Minnesota State Medical Society, June 21, 1899.

It is not my intention to argue that young men should study veterinary medicine in preference to other professions. Some young men are especially adapted for the practice of law, others for the practice of human medicine and still others for the practice of veterinary medicine, and every young man should take up the profession which he conscientiously believes to be the one in which he can do the greatest good for society as a body, and himself as a unit. I beg leave to explain one other point in connection with this paper, viz. : that I have preferred to use common terms whenever the technical term was strictly veterinary and would not be well understood by a majority of physicians in human practice.

Young men are occasionally deterred from the study of veterinary medicine by a fear that they would not be so highly thought of in the community as if they studied human medicine or law or theology.

I became convinced years ago that regardless of profession or business, providing it is an honorable one, men are usually given about the social rank and recognition that they deserve. If a lawyer or physician is uncultured in speech and ungentlemanly in manner he is ranked as a boor, regardless of the fact that he is a member of a highly honored profession. If a veterinarian is well educated and a gentleman he is recognized as such. I know plenty of veterinarians in this State who are so recognized and treated, and I am personally acquainted with

veterinarians all over the United States who are recognized as scholarly gentlemen.

Veterinary Education.—In 1890 the two years' course was common all over the United States and Canada. There were but few exceptions. The change to a three-year course was so rapidly made during the early nineties that within a few years there were but two veterinary schools of any prominence in the United States or Canada that granted diplomas at the completion of a two years' course. I can best illustrate veterinary education in America by taking one of our good schools and discussing the course of study and facilities of the institution. The youngest veterinary college of any prominence in America is the New York State Veterinary College at Cornell University, New York. On the faculty list of this institution occur such names as Pres. Schurman, of the University; Dr. James Law, famous alike in America and Europe as a practitioner, student and author; Dr. W. L. Williams, one of the most prominent members of the American Veterinary Medical Association, and well known throughout the United States and Canada; and Dr. V. A. Moore, whose work as bacteriologist in the study of hog cholera has made him famous. This institution is located at Ithaca on the campus of Cornell University. The buildings which belong exclusively to this institution are seven in number. I fancy that many of the medical men attending this association meeting would be surprised if they were to visit the amphitheatre operating room, and note every convenience and appurtenance that goes with modern surgery; or the dissecting rooms and note the precautions that have been taken to secure all the desirable features which belong to a modern dissecting room; or the hospital and note how perfectly the conditions meet the requirements, for instance in the infectious disease ward; or the pathological and bacteriological laboratories and note the splendid equipment.

Candidates for admission into this school must possess the preliminary education represented by a course requiring at least forty-eight regents' counts in a registered academy or high-

school, or a preliminary education that will be accepted by the regents as fully equivalent. The regents will accept as equivalent a "baccalaureate degree from the academic department of any college or university of recognized standing." There are several equivalents which will be accepted; but they all require that the students shall come to this institution thoroughly prepared. I think the entrance examinations would satisfy the most fastidious committee on medical intelligence and education.

During the first year the students take up inorganic chemistry, anatomy, microscopy and histology, embryology, comparative physiology, breeds and breeding, dissection and the usual laboratory work; second year: organic and physiological chemistry, anatomy, comparative physiology, therapeutics, medicine, surgery, obstetrics, jurisprudence, sanitary science, bacteriology, the usual clinics, dissection and laboratory work; third year: medicine, clinics in medicine and surgery, surgery, zoötechnics, toxicology, sanitary science, pathology, meat inspection, research work and thesis.

In addition to our colleges there are other important factors to be considered in connection with modern veterinary education. Nearly every State in the Union having within her borders a reasonable number of veterinarians, has state and local veterinary associations which meet regularly and discuss professional matters just as do similar associations of physicians. For 35 years we have had a national association. Last year we decided to enlarge and the name was changed from the United States Veterinary Medical Association to the American Veterinary Medical Association. None but graduates of colleges which furnish satisfactory courses of at least three years are eligible to membership.

Our current literature is abundant.

But after the young man has finished the high school, academic or collegiate course and then this prescribed veterinary course and graduated, what does the world offer him? What business prospects or what opportunities to gain reputation are

there to justify the time and expense involved? It is not my intention to paint the prospects for a young veterinarian in untrue colors, for every intelligent veterinarian and stockman knows that veterinary practice during the past few years of depreciation in live stock values has not been extremely attractive; but the stockmen themselves, the business men in our great cities and possibly my medical brethren have suffered something from this same condition. There is a veterinarian in Chicago whose income from actual practice is estimated at from \$40,000 to \$60,000 a year. A private veterinarian's practice right here in Minneapolis during more prosperous years was actually worth from \$10,000 to \$13,000 for years in succession. Another practice in St. Paul netted nearly as much.

The present ratio is three farm animals to each human being and less than one veterinarian for each ten physicians. The live stock valuation in the United States is estimated at \$2,000,000,000. Two hundred and fifty millions dollars' worth of live stock is sold annually in Chicago. I give these figures to illustrate possibilities, not for the purpose of giving an impression that veterinary practice is a universal bonanza, for there are plenty of practitioners in veterinary as in human medicine who can scarcely keep their laundry bills paid.

The Government Bureau of Animal Industry is now offering positions for veterinarians as meat and live stock inspectors at the great slaughter-houses and ports of entry or shipment. Bureau inspectors must be graduates of recognized veterinary colleges. It has been so ordered by Congress. The Government is already employing a large number of trained veterinarians in these capacities and this work has only begun. To illustrate the development of this field it is only necessary to bear in mind that the increase of meat inspection alone was from less than 4,000,000 animals in 1892 to 26,500,000 in 1897. In 1898 there were over 51,000,000 animals inspected ante-mortem, and over 30,000,000 animals inspected post-mortem.

In nearly every State and territory there is a position for a state or territorial veterinarian or an officer with equivalent du-

ties, and a number of deputies. Many of our large cities have city veterinarians in constant employ. There are places in our agricultural colleges and experiment stations for veterinarians who have a taste for work as teachers and experimenters.

Veterinary Sanitation.—Recently the bacteriology of pleuropneumonia has been cleared up by the discovery of a microbe so minute that our most perfect microscopes are unable to define it for the observer. Competent bacteriologists pronounce the work in this case as free from flaws and there is apparently no reason why we should not accept it. If the specific germ of one disease is too minute for microscopic study, there may be many others. There are several diseases of domestic animals, the specific cause of which has persistently eluded the bacteriologists and it is possible that in this we have an explanation. New methods of bacteriological work may now solve these hitherto impossible problems.

Texas Fever.—The history of Texas fever presents another triumph. It has been but a few years since the origin and nature of this disease was a mystery. It is difficult to give a definite idea of the seriousness of this disease. Practically all of the cattle in the United States, south of a certain line, are either affected by it or have been rendered immune by infection while young. Southern cattle could not be shipped north for pasturage or market except during cold months. Northern cattle could not be shipped south for the purpose of improving southern stock without almost complete loss. Great business interests were constantly disturbed and the loss to both southern and northern States was serious. We now have the etiology of this disease before us, as an open book. It has been proven very conclusively that the disease is transmitted in nature invariably by inoculation and the inoculation is done only by one species of the tick (*boöphilus bovis*). Southern cattle free from living ticks can therefore be shipped north without danger. Government veterinarians have been experimenting for some time with various dips for destroying the ticks so as to remove the last obstacle to the movement of southern cattle northward

at all seasons of the year. Not only that, but it is now quite apparent that young cattle may be immunized and be safely shipped into the Southern States. This means the possibility of improving the southern cattle, and you are doubtless aware of the immense cattle interests of the South, particularly of Texas and southwestern Louisiana.

Bovine Tuberculosis.—The problem of tuberculosis in the human family and among domestic animals is perhaps the largest, and it may prove the most difficult problem which medical men have ever been compelled to face. Dubard's discovery of tuberculosis in fish has been such a revelation that it is unsafe to even speculate concerning the limitations of this disease. Here we have a bacillus, varieties of which can exist in different animal bodies through a range of temperature of from 50 degrees F. in carp to 135 degrees F. in birds. Are there varieties of the bacillus of tuberculosis which are capable of altering from one to the other? Competent research work seems to indicate that this may be the case. If this bacillus can gradually adapt itself so as to thrive in a variety of animal bodies, whose normal temperatures vary from 50 degrees F. to 130° or over, then the possibilities as to distribution and saprophytic existence of this microörganism are almost bewildering.

Sanitarians in the field of veterinary medicine have taken hold of the problem, large as it is, and considerable has already been accomplished. But a few years have passed since we had the first positive information as to the specific nature of the disease. We now have a diagnostic test for the presence of this disease which is as nearly infallible as any method of diagnosis in the whole realm of medicine. It gives us positive evidence as to the presence of the disease, even when the lesions are very recent or slight in extent; and so far as known the errors that may be charged to tuberculin are nearly or quite all in cases that can be diagnosed on clinical evidence without the aid of tuberculin. Widespread interest in bovine tuberculosis has been aroused. Cattle breeders and dairymen are becoming informed as to the nature and extent of the disease. The views of

breeders, especially, have changed very much during the past few years. When tuberculin first informed us that a serious percentage of highly bred cattle was tuberculous it naturally aroused the opposition of breeders and owners. But as it became more and more evident that their cattle were actually diseased and that tuberculin was an accurate test as to the presence or absence of the disease, the more intelligent breeders naturally came over, and it is now safe to say that there are comparatively few cattle breeders in the United States or Canada who do not believe that bovine tuberculosis is seriously prevalent and that tuberculin is an accurate diagnostic. It is becoming rather common for breeders to purchase stock subject to test or with certificate of test. It is no longer necessary to found a herd of pure bred stock with tuberculous animals, and it is possible with the aid of tuberculin to free a herd from this disease. In view of recent work that has been done in Denmark and Germany and by experimenters in this country, it is very evident that it is not only practical but possible to breed tuberculosis out of a herd. This is based upon the demonstrated fact that a very large percentage of healthy calves can be reared from tuberculous dams, providing the calves are removed from the mother soon after birth and reared upon the milk of healthy cows or upon the sterilized milk of the dams. It seems to be a fairly well demonstrated fact that tuberculous cows with diseased udders are apt to give infectious milk and that tuberculous cows with apparently sound udders may give such milk. It is now quite generally recognized that dairymen should not be permitted to sell milk which comes from untested cows for any city food supply, although comparatively few cities are making the tuberculin test a condition for issuance of license. Minneapolis was the pioneer in this and deserves great credit.

St. Paul has recently adopted an ordinance somewhat similar to the one in force in Minneapolis, and the work for that city will soon be well under way.

Chicago papers are discussing the matter. The veterinarians and physicians of that city are planning a joint meeting in

the near future to consider it. There is every reason to hope that a dairy inspection, which will involve the tuberculin test, will soon be in force in the great city of Chicago. Other cities will undoubtedly follow.

Permit me to explain the stand that has been taken concerning bovine tuberculosis in Minnesota State Board of Health work :

1st. That it is not practical under present conditions to insist upon an immediate tuberculin test of all cattle in the state.

2d. Whenever undoubted tuberculosis appears in a herd or any animal that has come from a given herd, that herd must be tested with tuberculin.

3d. Animals that react to the tuberculin test may either be immediately killed or continued under quarantine for a period not to exceed three months, at the end of which period they must be retested. If they react on second test, they must be killed under inspection within one month from date of second test. The State Board furnishes tuberculin free of expense. During the period of quarantine the sale of milk or other food products from quarantined animals is forbidden.

Other Diseases.—Symptomatic anthrax, commonly called black-leg, can now be prevented with almost absolute certainty by vaccination, the vaccine costing only about fifteen cents per head. Losses from this disease in the past, even in Minnesota, have been very serious. Further south and on the range country to the west the loss from this disease has been very heavy.

The same may be said of anthrax proper. Its bacteriology and general pathology are now well understood. We have a vaccine in quite common use that is very satisfactory as a preventive.

Hog Cholera.—It is safe to insist that during the present decade Minnesota has lost over a million dollars from hog cholera in one year. Iowa has lost several millions per year for several years in succession. The financial losses in Nebraska and other states have been enormous. The Bureau of Animal

Industry, or, in other words, the Veterinary Division of the Department of Agriculture, has now developed a vaccine which has apparently shown 80 per cent. of recoveries in hogs vaccinated, as against 20 per cent. for hogs not vaccinated. It is being gradually recognized that with thorough organization hog cholera can be quarantined successfully, providing the quarantine measures are instituted early in the history of the outbreak, and even when the disease has spread over a large territory, a well organized effort, backed by a good law, can accomplish a great deal toward gradual reduction and final eradication of the disease. Now that we apparently have a preventive vaccine, the problem of control looks still easier. To illustrate what can be accomplished, I have only to quote a few facts and figures from Minnesota records ; and, by the way, Minnesota can claim the distinction of having been the first state to attempt the control of this disease by sanitary measures. In 1896 this state lost over a million dollars in dead hogs alone, saying nothing of other financial losses that necessarily accompany the loss of so much live stock. In 1897 the loss, as nearly as can be estimated, was less than one-half a million. In 1898 a similar estimate had placed the loss at less than one-third of a million, approximately \$325,000. The reduction of territory invaded was from 354 townships invaded in 41 counties in 1897 to 93 townships in 32 counties in 1898. This has not been entirely due to natural conditions, for our neighboring states, Iowa, Nebraska and Wisconsin, report no reduction, and in some cases an increased annual loss during the same period.

We have in mallein a positive diagnostic for glanders, and it has revealed an unpleasant fact, viz.: that glanders is more prevalent than we had previously supposed. The public idea of a dejected looking horse that is discharging profusely at both nostrils, with great ulcers on the Schneiderian membrane and farcy sores on the body surface, is in some respects unfortunate, for it is difficult to get people to comprehend that a horse may be fat and show no marked symptoms of glanders and yet have the disease, and be infectious to other horses.

Surgery.—There are several operations commonly done by surgeons in human practice that we make no attempt to perform. Our patients rarely, if ever, have appendicitis, and the removal of this organ in the horse or cow would be a rather formidable operation, inasmuch as the equine appendix is about three feet long, with a capacity of seven and a half gallons. The cow has an appendix that measures about seven feet. It is scarcely possible in general practice to furnish ideal conditions during operation, and we cannot control our patients to the same extent after the operation.

Operations are usually performed as a matter of business as far as the owner is concerned. Sentiment does not play so important a part, but, after all, we have reason to be fairly well pleased with the veterinary operative surgery of to-day. An accurate knowledge of anatomy enables us to use cocaine as an aid in the diagnosis of obscure lameness. If we anæsthetize the sensory nerve supply to a certain muscle or ligament or an entire articulation, and the horse, which previously went lame, afterwards goes sound, we have fairly satisfactory proof as to the exact location of the injury. To illustrate: a patient recently came to the University Veterinary Hospital with a badly swollen ankle and a history of injury while training on the track several years ago. Examination easily demonstrated that trouble at the ankle was responsible for some of the lameness, but upon further examination I found an unusually bad case of thrush, and, while considering the advisability of a certain operation for relief, the question arose as to what part, if any, of the lameness was due to thrush. I cocainized the posterior digital nerves just below the ankle and noticed that the horse continued to go lame as before. I then cocainized the plantar nerves just above the ankle, and in from twelve to fifteen minutes the horse was apparently free from lameness. I had then located the trouble causing lameness. Veterinary surgeons are now doing quite a long list of neurectomies for the relief of lameness and the results are very satisfactory on accurately diagnosed and well selected cases. We are cutting the median

nerve on the upper third of the radius for the relief of lameness of the back tendons, ringbones and various foot troubles; cutting the plantar nerves, one or both, just above the ankle for ringbones, navicular disease, corns, etc.; the digital nerves just below the ankle chiefly for navicular disease. We do neurectomies of the anterior and posterior tibial nerves, for the relief of spavin and other forms of lameness in the posterior limb. We divide the motor branch from the eleventh cranial nerve to the sterno-maxillaris muscle, and the bellies of the sterno-hyoid and omo-hyoid muscles to prevent a horse from cribbing and cure the habit. The cunean branch of the flexor metatarsus tendon is frequently divided for the relief of spavin lameness. We have a new operation, arytenoideraphy, which is probably superior to the old arytenectomy for the relief of what is commonly termed roaring. We now drain the guttural pouches, which in the horse are large expansions of the Eustachian tube, either by operating through the pharynx from within or by introducing a catheter through the nostril instead of the old hyovertebroto-my. Laparotomies are fairly common; for instance, in cryptorchid castration, ovariectomies, removal of foreign bodies from the alimentary canal, and volvuli.

Until recently, parturient apoplexy, commonly known as milk fever, was one of those diseases which every veterinarian was anxious to avoid. A call to attend a case of parturient apoplexy was very much like a call to attend a funeral. We now have a treatment that is apparently specific, based upon the theory that the whole train of peculiar symptoms is brought about by absorption of toxic matters from the interior of the mammary glands. This treatment consists essentially in the injection of an aqueous solution of potassium iodide into the milk ducts. Care is taken to do the operation with as thorough surgical cleanliness as possible.

We can now administer a cathartic and thoroughly evacuate the alimentary canal in twenty-five to thirty minutes by the hypodermic or intratracheal use of eserine sulphate, either alone or in combination with atropia or strychnine.

I have discussed veterinary education, veterinary sanitation, a few operations from the domain of surgery, and a few points in disease and treatment work, to illustrate something of what the modern veterinarian is doing. If the gentlemen of this association have gained new ideas concerning veterinary practice, or a broader interest in the great field of comparative medicine, I am content.

(Reprinted from the "*Reveille*," Louisiana State University.)

INTRA-OCULAR FILARIASIS.

BY DR. W. H. DALRYMPLE, BATON ROUGE, LA.

Although titles such as the above are not of weekly occurrence in the columns of *The Reveille*, readers need not be at all disconcerted, as this one simply refers to a thread-like worm or parasite in the interior of the eye. It might be in man, or a steer, or even an ass, but in the present instance it was only in a horse. All this explanation would, probably, have been uncalled for, had we stated, in plain everyday language, and without all these scientific terms, that the condition we desired to describe was nothing more nor less than worm in the eye; or snake, if you prefer looking at it through a magnifying glass. Or, in other words, if you would rather have it exaggerated just a little bit. But, as ours is an institution of learning, where scientific terms are in daily use, and where we are supposed to become familiar with, and know the meaning of, scientific phraseology, it would be too common-place to use the expression: worm in the eye, when we had recourse to such a euphonic and expressive appellation, as intra-ocular filariasis. Besides, we must not be so selfish as to want to keep all our scientific learning within the confines of the college campus. We must share the benefits of our information with our readers, so that, should any one of them, come across a worm in the eye of any animal, possessed of visual organs, including the genus homo, he may, if he likes, be so mediocre as to give it its common everyday name, but if he wishes to appear quite *au fait* in

the use of technical terms, as to the meaning of which he may be altogether "at sea," which is of daily occurrence, we would certainly recommend the more classic expression. As we have already stated, the patient, tendering hospitality to this rather irritating guest, was a horse. Possibly that was a misfortune, for the horse. Had he been a man, he would, of course, at once have sought a specialist, an oculist, who would, after successfully extracting the nematode, have presented a bill much longer, no doubt, than the parasite, and the operation have been considered something wonderful. Probably heralded all over the country as a most wonderful feat in ocular surgery. "Just to think of it, a living worm taken from the eye of a man, and yet the patient expected to live." Now it is different with the veterinarian. He rarely or never gets the credit for a delicate operation on the lower animal that the human surgeon does for similar work, although just as deftly performed. And why? Because the one is dealing with human life; the other, with that of one of the lower species, which is too often viewed, only, in the light of dollars and cents. The difference lies, then, not so much in the quality of the work as in the patient. A man may have one of his limbs amputated, and if it saves his life, the operation is a success. Not so in the case of the lower animals. Any operation, be it ever so skilfully performed, if it renders the patient unfit for work, it is a failure. We made the statement, that if this horse had been a man, he would have sought a specialist. Now the veterinarian has not, as a rule, the opportunity for specializing. The public expect him to be familiar with all branches of comparative medicine and surgery, so that if he can be called a specialist at all, he is an all-round specialist. He is forced to keep abreast of his professional work so that he can fill the office of the oculist, the aurist, the rhinologist, the dentist, the dermatologist, the gynecologist, the helminthologist, and all the other specialists in surgery and medicine. In operating for intra-ocular filariasis, he would then, of course, be doing the work of the oculist.

The patient brought to the veterinary department of the

university, February 4, was a little bay horse, about 14 or 14½ hands high, and with a decided leaning to the side of the type, "scrub." The small worm or parasite could be distinctly seen with the naked eye, our eye, swimming actively about in the aqueous humor which occupies the anterior chamber of the eye, just behind the cornea. The length of the filaria was about 50 millimeters, or in the neighborhood of two inches.

Before operating, all the instruments that were to be brought into use were rendered sterile by immersion in a 3 per cent. aqueous solution of carbolic acid. The front portion of the eye, the cornea, was anæsthezied by the use of a 4 per cent. solution of cocaine. After all sensation was lost, the cornea was then opened with a delicate lancet, the incision being made to one side of the line of vision, and the watery humor allowed to escape. It was hoped that the parasite would be forced out of his temporary habitat by the flow of the humor, but instead, he wriggled to the opposite corner of the eye and became stranded from want of water to disport in, and by collapse of the cornea, so that our first incision was of very little use to us. Partly due to the influence of the cocaine, perhaps, and also to the collapse of the cornea, the worm became almost stationary, and a second incision was then made through the cornea, right down on to him, and which, by the aid of a delicate pair of forceps we were enabled to get hold of and extract successfully.

The horse belonged to a negro who took him home to the country, a distance of about six miles. He was given a prescription for a mild antiseptic and astringent collyrium (eye-wash), with directions for use. If carefully treated, there is no reason why the operation on the eye should not result favorably, as the fluid will be again secreted, and the organ resume its normal condition. If neglected, opacity will most likely take place and blindness ensue. As the owner has not as yet returned to report progress, we are unable to give the positive result, which we hope, however, may be satisfactory. Referring to the parasite, the "*filaria papillosa*," it may be said to be somewhat rare in the United States, that is, it is by no means

common. So far as we know, it is not known to exist in Great Britain at all, but is of frequent occurrence in India. We were invited by an officer of the Bureau of Animal Industry at Washington, D. C., to send the parasite to add to the National collection there, but as we had one of our own, we decided to add one more to the number of specimens, in the form of the *filaria papillosa*, the fellow responsible for the condition known as intra-ocular filariasis.

We cannot close without expressing our thanks for the valuable assistance afforded by the members of the senior class in veterinary science, and also and especially for the practical help given by assistant-surgeons (?) Professors Dodson, Himes, and Burnette, and Hospital-Surgeon Chaney, who held vigorously on to the ropes until the completion of the operation.

REPORTS OF CASES.

“ Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

ACTINOMYCOSIS IN THE HORSE.

By COLEMAN NOCKOLDS, V. S., M. D., Grand Rapids, Mich.

The following may be of interest to some members of our profession. I was called some time since by a brother practitioner to dispose of what he regarded as a peculiar case.

Subject:—A bay gelding, aged, somewhat emaciated, pulse 135 and irregular; temperature 104.5° F.; respiration 34, irregular and labored.

History developed nothing, only that the owner had just traded for the animal. The sheath was swollen, hard and rugged; the scrotum was tense and looked and felt as if there was a hard irregular mass bearing down upon it. There was a discharge of a muco-purulent character running from the sheath, also from several openings in the sheath and scrotum.

Upon examining further, the deep and superficial inguinal lymphatics were very much enlarged and painful upon pressure. The horse being aged and almost worthless, the owner was advised to have it destroyed, but he wanted to have an operation performed, even though the horse died while down. After casting and securing the animal in a convenient position

an incision was made in the anterior region of the scrotum, and after dissecting a portion of the growth out it was found that removal was impossible without removing the sheath and a portion of the penis, which had become diseased and adherent to the mass. There were several large pockets of pus in the tumor, and after removing a portion of the neoformation, weighing $7\frac{1}{2}$ lbs., the opening was dressed and packed, and, because of the excessive hæmorrhage, the enlarged glands were not removed at that time. Three days after the operation the owner destroyed the horse, although everything seemed to be progressing favorably towards recovery. Upon making a post-mortem, the gentleman who had the case informed me that not only were the superficial and deep inguinal glands involved, but a great many of the abdominal lymphatics were enlarged and contained pus. The whole length of the penis, the prostate gland, and the neck of the bladder were involved. Upon examining some pus and sections from the growths, I found numbers of the ray fungi actinomyces. It is evident that the animal must have been inoculated by the parasite during or following castration, and the adjacent tissues became infected by metastasis.

AMPUTATION OF THE PENIS.

By J. A. McCrANK, D. V. S., Plattsburgh, N. Y.

While on a professional call to a neighboring village during November, 1898, I was invited to visit a gentleman's barn to see a horse—a beautiful black gelding, seven years old, 16 hands high, sound and a stylish driver, but he was affected with chronic paraphymosis. No history, as he was taken in a trade. The penis protruded some eight inches and had an uneven circumference of about fourteen inches. The owner wished very much to have it removed or cured, and wished me to undertake the work.

I am very careful of the small amount of reputation I have, so I shivered at the idea, never having undertaken such work before. I told the owner so, and advised him to trade once more, as I could not predict the outcome of such an operation. I said that the operation of removal was frequently performed with good results, but I did not care to try it on such a beast. In fact, I refused, and left the town for home. After two weeks he wrote me that he knew I could do the job, and that he was advised to turn the animal over to my care and to take all risks. I was now very much pleased at the confidence he had in me

and replied to bring on the horse and leave him with me.

The method of operation was the same as given in "Williams's Surgery." The tourniquet applied, antiseptics, the catheter inserted, the muscular part of the penis dissected away to leave about an inch of urethra projecting. The arteries were now secured with catgut ligatures; the urethra was next split into four strips, each one carefully sewed back to the skin and muscles of the penis. Next a liberal use of antiseptics. The animal was now allowed to rise; the sheath and surroundings were daily irrigated with antiseptics, and a soft diet was given.

The animal never evinced the least uneasiness nor stiffness. There was more or less hæmorrhage at times for three days. He never missed a feed and went to work in the team in two weeks' time and worked every day since. Since then I have operated on two such cases with similar results. I have my reputation yet, and have added fresh laurels in these cases.

This report is for my young and timid brother practitioners, who, like me, are preserving the reputations they have. I say "Go ahead; fear not, as long as you are cleanly in your work, and so long as your sound sense stands by you."

EXTRACTS FROM EXCHANGES.

AMERICAN REVIEW.

AN UNUSUAL INJURY WITH PECULIAR SEQUELÆ [*By E. P. Flower, Student U. S. Col. Vet. Surg.*].—The facts in the following interesting case are taken from the *July Journ. of Comp. Med.*: About February 1 a bay mare was brought to the college hospital with marked dyspnœa, caused by hard, fibrous-feeling enlargement midway of neck, seeming to have originated behind the trachea, pressing it from its normal position to the left. Owner said mare had been kicked while at pasture; shortly afterward slight enlargement was noticed, which gradually increased in size. After examination diagnosis of fracture of tracheal rings with secondary fibroma was made. Animal being spirited, resisted manipulation, and excitement caused increased dyspnœa. After fifteen minutes in stall, distress was alleviated. Tracheotomy was then done just below enlargement, when, to surprise of surgeon, a double polypus was found filling almost

the entire tracheal cavity—one suspended from membrane above, becoming constricted as it neared middle of trachea, the other starting from inferior portion of this constriction by a slender pedicle, flat in shape and swung like a pendulum, oscillating with each inspiration and expiration, thus being cause of the difficult breathing when excited. Ecraseur was passed around growth at its superior portion, just at its junction with membrane of trachea, and growth extracted. The fingers were then inserted, and worked around to outside of trachea, coming in contact with foreign substance imbedded in muscular parenchyma, the projection which had backed up against the trachea, causing its deviated position, producing intense inflammation, cause of polypi. After enlarging incision to permit introduction of heavy forceps, object was with difficulty removed, which proved to be a piece of chestnut rail, one inch in diameter and five inches in length, frayed and sharp at point, well preserved. Four times the forceps brought forth pieces of wood, ranging from one-half to three inches in length. They were encysted in a degenerated capsule of a caseous nature, probably organized inflammatory exudate. The author considers the most remarkable point in the case the fact that the morbid alterations were comparatively small, as entrance had been effected with violence, attended with laceration at point of entrance, and at no time had there been any suppuration. Owner finally remembered that in May, 1898, she had forcibly collided with fence, producing small wound at side of neck, which thoroughly healed in few days. In a few days mare was taken home, and was doing well when last heard from.

EVERSION OF UTERUS IN MARE [*By D. D. Lee, M. D. V., Boston, Mass.*].—A saddle mare came out of the arena at 5.30 and immediately the water-bag showed, and a ten-months-old dead colt was expelled. In two hours the mare became uneasy, and at 11 o'clock, being quiet, a soothing potion was given and the mare left for the night. At 3.30 A. M. the uterus and part of the horns were everted, the patient became frantic and bled profusely. The author being sent for, used side lines and returned the uterus. The rubber bag and bulb of a thermo-cautery were placed in the womb, after tying the tube, and the bag was blown up. She remained quiet until the next evening, when she began straining very badly, and tracheotomy was performed. This at once stopped the straining, and the bag was removed from the uterus. To prevent her from lying down slings were placed in position. Tube was removed in three

days, and the slings in five days. In ten days she was well. Six weeks prior to this accident the mare passed an examination for soundness.—(*Journ. Comp. Med.*)

ENGLISH REVIEW.

MEDIAN NEUROTOMY [*By W. B. Nelder*].—This operation is making its way in the domain of veterinary surgery, and continues to give the same satisfactory results in relieving lameness due to diseased conditions of ligamentous and tendinous structures, and to bony deposits of the lower parts of the anterior extremity. In his article the author records his experience in six cases where excellent results were obtained. Lameness due to splints, chronic thickening of the suspensory ligament, of the perforans and perforatus tendons, of ringbones and sidebones, and also navicular disease, were relieved and the animals returned to work, which they have performed ever since to the satisfaction of their owners. The lameness had existed previous to the operation for from three to six months and in two of the cases for twelve months. The cases were recorded in the *Journal of Comparative Pathology*. Mr. J. Webb, in the *Record*, reports the case of an aged mare which had been lame for several years, due to ringbone, chronic sprain of the back tendons, and an enlarged knee. In all three cases the lameness subsided immediately. In one it returned after three months, but was relieved by blistering, which permitted the animal to work for six months, when it was disposed of.

PULMONARY FILARIASIS IN A MULE [*By H. B. Elliot, M. R. C. V. S.*].—It is unfortunate that a minute post-mortem examination could not have been made in this interesting case; but imperfect as this was, the history and the manifestations presented, were certainly very uncommon. This mule, aged seven years, was laid up on account of lameness in the rear hind leg; she had been more or less tender in that extremity on several occasions. From general examination a diagnosis of hip lameness was made, and, the animal improving, she was returned to work. For several months the mule was able to perform her duties, although never entirely free from lameness; she was considered "a good working mule." One day she re-entered the hospital for a swelling extending from the point of the near elbow to the adjacent thoracic region, attended with considerable lameness of the near leg. This subsided under anodyne treatment. Some two weeks later she was found down in her

stall in great pain ; she was raised, but was unable to stand. She kept constantly lying down, and was soon full of bed sores. General symptoms manifested themselves : pulse frequent, full and soft ; temperature 102° ; excretion natural ; ravenous desire for food, but small amount ingested ; mucous membranes injected. Lying down in a semi-paralytic condition, the mule dashed itself from side to side, and during some of this struggling fractured several ribs, which were not diagnosed until after death. The animal was finally destroyed, but on account of peculiar circumstances the post-mortem was not as minute as it should have been. The following condition was found : Quite a thick coat of fat through the abdominal muscles, under the peritoneum, and around the viscera. Heart, liver, spleen, kidneys, stomach, intestines, spinal cord, etc., were *apparently* normal. A few worms in the stomach and rectum. The ribs of the off side, from the fourth to the tenth, and the seventh and eighth ribs of the near side, were fractured. The lungs showed a marbled appearance of inflammatory lesion. On section a worm made its exit through one of the arterial vessels. A closer examination revealed the fact that the arteries swarmed with these worms. They were filaria.—(*Veterinary Record*.)

A CASE OF ACTINOMYCOSIS IN THE COW [*By James McPhail, M. R. C. V. S.*].—This case presents a great deal of interest, showing the importance of the use of the microscope in bringing out a correct diagnosis. A cow being examined by an inspector was found to have in the hind quarter of the off side of the udder a few hard lumps. After a fortnight these were much larger, fused together, but still confined to that quarter of the udder. Examination of the milk gave negative results. In six weeks the lumps were still larger, and the other side of the udder had become invaded. The cow was ultimately destroyed. At the post-mortem the hard masses of the udder were examined with the microscope, and exhibited the ray fungus of actinomycosis. When the lungs were removed and examined small nodules were found in them ; these at first sight much resembled tuberculous deposits, but on being examined the ray fungus was again found, and the idea of tuberculosis discarded.—(*Veterinary Journal*.)

TUBERCULOSIS IN CATS [*By J. Pemberthy, F. R. C. V. S.*].—In a recent issue the *Veterinary Record* publishes some interesting remarks on this subject from the author, tending to demonstrate that cats may be a source of danger to man as far as tuberculosis is concerned. Although in practice for many

years, Mr. P. has not been called upon to make many post-mortems upon cats; but lately he has had the opportunity to follow three animals, and each one proved tuberculous. The lungs were found on post-mortem to be extensively consolidated, with almost the whole of the pulmonary tissues affected. The bronchial glands were more or less enlarged. In one of the animals tubercles were found on the abdominal viscera, the tubercle bacillus being present. Of course, these three cases may not be of positive value as a certain source of danger; yet they seem to prove that feline tuberculosis may be more common than is usually suspected. It is certain that more clinical observations and post-mortem examinations ought to be recorded and their history added to that already so rich of tuberculosis.—(*Veterinary Record*.)

TUBERCULOSIS OF THE HEART IN A COW [*By Prof. Stockman*].—The organ weighed $42\frac{1}{2}$ pounds. The pericardium showed only a few recent tuberculous lesions; the epicardium, slightly altered, had its surface greatly raised by numerous tuberculous centres situated underneath in the walls of the heart. On section the organ was a mass of caseous matter, with many calcareous deposits. The inter muscular fibrous tissue was increased. Immediately around the cavities there was a narrow band of apparently sound muscular tissue. The cavities were, of course, much reduced in size. The valves were normal; the suprasternal lymphatic glands at the point of the pericardium, and the cardiac glands, offered an advanced caseous condition. The lungs contained no tuberculous lesions. The author believes in an infection through the lymphatic channels.—(*The Veterinarian*.)

EXTENSIVE DISEASE OF THE SPLEEN IN A HORSE [*By C. Dayus, M. R. C. V. S.*].—A sixteen-year-old hunter was losing condition, and received a mild dose of physic, with a little tonic medicine. Although his appetite remained fair, he kept gradually growing worse. After some time, suspecting some organic affection, in his attempts to make a diagnosis, careful examination by the rectum revealed the presence in the left hypochondriac region of a hard substance, which was supposed to be a mesenteric tumor, although the animal never manifested colicky pains. There was considerable tenderness over the spot on external pressure being applied, and the animal moved very stiffly on that side. The horse was destroyed, and at the post-mortem it was found that "the tumor was a greatly enlarged and extensively diseased spleen, which weighed exactly twenty pounds."

The other organs were healthy. Examination of the tumor revealed it to be tubercular in nature.—(*Veterinary Record*.)

GERMAN REVIEW.

By PROF. OLOF SCHWARZKOPF, Flushing, N. Y.

LACTIC ACID IN THE TREATMENT OF MELANOTIC TUMORS.—Vogel reports the successful application of lactic acid in the removal of melanotic tumors in horses. In several cases he injected a solution of 1:4 water around the basis of the tumor, using as many injections as the size and circumference of the tumor necessitates. This treatment results in an artificial digestion of the diseased tissue, gradually loosening the tumor from its surroundings. After a few days it becomes possible to enucleate the tumor with an elastic ligature or the ecraseur. The remaining wound surface is not of a malignant character as was expected, but rather shows a tendency to rapid repair under influence of antiseptic treatment.

FOREIGN BODY IN THE STOMACH OF A HORSE.—Eberbach reports an interesting post-mortem examination of a horse, which had been ailing ten days previous to death and had been treated for gastritis. On opening the abdomen the peritoneum appeared as reddish-green, and a quantity of bloodish fluid was emptied. After removal of the intestines and exposure of the stomach, a tumor of the size of a man's fist was found adhering to the large curvature of the stomach. The tumor was flat, of a tough structure, and microscopically made up of connective tissue with plenty of interstices. It was lengthways perforated by a needle, the point of which had penetrated the tumor. The stomach itself was partially filled with ingesta, and on the corresponding place of the tumor the mucosa was dark red and considerably swollen, the ear of the needle being exposed. The needle was 21 cm. long and of the kind used for fastening tobacco-leaves grown in that country. As the horse is a careful feeder and possesses such a skill in expelling even very small obnoxious objects from the mouth, this case is one of the few literally known. B. thinks that the needle, being taken up with the hay, stuck with its point in the tongue, and the horse being unable to expel it, was almost compelled to swallow it.—(*B. T. Wochenschrift*.)

BIBLIOGRAPHY.

PATHOLOGIE INTERNE DES ANIMAUX DOMESTIQUES (Internal Pathology of the Domestic Animals). Vols. VII and VIII. By Prof. C. Cadéac. Published by J. B. Baillière et Fils, Paris.

It is with great regularity that Prof. Cadéac continues the publication of his *Veterinary Encyclopædia*. But a few months ago Vol. VI was issued, and now, within a few weeks of each other, Vols. VII and VIII are offered to the veterinary world.

Volume VII is divided into three parts :

The first part contains the continuation and the end of the diseases of the urinary apparatus, and in two distinct chapters the reader is made familiar with purulent nephritis, renal abscesses, amyloid and fatty degenerations, traumatism of the kidney, polycystic kidney, calculi, tumors, parasites, pyelitis, pyelonephritis, and cystitis.

The second part treats of diseases of the skin. In twenty-five chapters we notice alopecia, hypertrophy of the hairs, urticaria, erythema, dermatitis, acnea, vaccina, horse and cow pox, pityriasis, impetigo, psoriasis, mange, acariasis, eczema, etc.

The third part is devoted to parasitic diseases of muscles, psorospermiosis, measles, trichinosis.

Such are the subjects treated of in the seventh volume. The descriptions are clear, and it is filled with numerous illustrations.

Volume VIII completes the subject of internal pathology of the *Encyclopædia*. It is divided into ten chapters. In the first, the various forms of meningitis are treated. In the second, diseases of the cerebrum, viz. : Cerebral anæmia, congestion, hæmorrhage, softening, insolation, ependymitis, encephalitis, tumors. In the third, affections of the cerebellum, viz. : Hæmorrhage and softening, abscesses, tumors. In the fourth, diseases of the pons. In the fifth, of the cerebral peduncles. In the sixth, of the bulb. From all these affections of the encephalic mass we pass to those of the spinal cord. In the seventh, spinal meningitis. In the eighth, affections of the cord substance—myelitis, chorea, etc. In the ninth we find epilepsy and the disease of Basedow. In the tenth chapter, under the head of poisoning, the subjects of lathyrismus and saturnism are treated.

There is no work in French veterinary literature which was more needed than such a treatise of internal pathology. It will prove of the greatest use to students, and practitioners will find

in reading it much material of interest and of instruction.

REVISTA CHILEMA DE HIJENE (Chilean Review of Hygiene). By Director Dr. Alejandro del Rio, Santiago.

A handsomely gotten up book of nearly six hundred pages, and illustrated with eighteen plates, containing records of interest on hygiene and reports of several international congresses, such as that at Moscow, Madrid, and Paris, in which we find as collaborators many of the celebrated physicians of Chile.

CORRESPONDENCE.

REPORT ON DR. SCHMIDT'S TREATMENT FOR PARTURIENT PARESIS.

CEDARBURG, WIS., AUG. 14, 1899.

Editors American Veterinary Review:

DEAR SIRs:—It is interesting to read the reports in the REVIEW of the potassium iodide treatment for parturient paresis. I believe we should all report the results we obtain. I will give my experience. I have had splendid results, but still I feel a little shaky. A few years ago I used nitro-glycerin with equally good results. The following season I used it again, and every case died for me. I follow Schmidt's directions to the letter, but in hot weather I use ice on the head, along with the other treatment.

Case No. 1.—Found down about 24 hours after delivery. Gave iodide injections. The next morning (about 24 hours after first injection) patient still down. Gave 125 grs. more. Six hours after last injection cow was on her feet, and made a good recovery.

No. 2.—Cow found down 20 hours after calving; owner thought she was dead when he reached the stable. I found her flat on her side; could not hold her head up. Gave her injection. Eight hours after when we wanted to turn her over she got on her feet, and, with the exception of stiffness for about one week, she did well.

No. 3.—Did not go down. Very shaky 24 hours after calving. Gave injection in the evening; cow all right next morning.

No. 4.—Found down 24 hours after calving. I saw her about four hours after she was found. This was about 9 o'clock A. M. I was very busy at the time, and the owner, thinking she

was not very bad, I did not call until next morning, when I was sent for in a hurry. When I reached the place the cow was dead. I believe that if she could have had another injection about eight hours after the first, she would be living to-day.

No. 5.—Taken ill three days after delivery ; gave one injection ; six hours after the cow was up moving around all right.

No. 6.—Cow taken ill 24 hours after delivery. Three hours after injection cow was walking around in barnyard.

No. 7.—Went down about 24 hours after calving. Gave injection about 2 o'clock P. M. Next day cow was still down, but feeling better. Gave second injection ; about six hours after last injection cow got on her feet. Two weeks after owner reported she was doing as well as she ever did.

No. 8.—Went down on fifth day after calving. The weather was very hot. Gave 175 grs. potassium iodide. Eight hours after first injection not much improvement. Gave 150 grs. Next morning cow was on her feet. About two days after, owner reported udder badly swollen. Hot applications soon removed the swelling. Cow is now doing well.

S. S. SNYDER, D. V. S.

CEDARBURG, WIS., Aug. 16th, 1899.

POSTSCRIPT.—Since I wrote you on the 14th inst., I have case No. 9 of parturient paresis. I thought I would send it and it could go along with the rest. I think the treatment worked wonders in this case.

Case No. 9.—Jersey, calved Aug. 15th, 3 A.M.; was called at eleven o'clock A.M. to remove the placenta ; at this time the cow would not eat nor drink, but still on her feet ; gave 1 pound magnesia sulph. At 2 P.M. the owner called and told me the cow was down and could not get up. I gave her 175 grs. iodide potassium. At 8 P.M. I called again ; she was still down. I gave her 120 grs. potassium iodide. This morning, the 16th, I called and found the cow walking around in the stable feeling almost as if nothing had happened her. It was only about eight hours after calving that I believe the disease started on her, and only about 11 hours until she was down and could not get up.

S. S. SNYDER, D. V. S.

GOOD RESULTS FROM SCHMIDT'S TREATMENT FOR PARTURIENT PARESIS.

FREMONT, NEB., July 25, 1899.

Editors American Veterinary Review :

DEAR SIRS :—I have used the Schmidt treatment for partu-

rient paresis with the best results. In the ten cases treated with it to date, a complete and thorough recovery has resulted in every case, without leaving any complication, as was often the case under the old treatment.

The most obstinate case was a patient which had a severe turn the year previous; she was down five days and the treatment was applied three times, and she made a splendid recovery.

The other cases all got up in from seven to twenty-four hours.

Yours truly,

H. CHAMBERS, M. R. C. V. S.

AS TO THE ANÆSTHETIC ACTION OF COCAINE.

ST. ANTHONY'S PARK, MINN., July 20, 1899.

Editors American Veterinary Review:

DEAR SIR:—I notice in the July issue of the AMERICAN VETERINARY REVIEW that Dr. A. F. Abbott reports that he has found several horses in which the local anæsthetic effect of cocaine could not be produced, although the physiological effect was marked. There is also an editorial comment concerning similar experiences in practice. I have had at least one such case in which I failed to secure anæsthesia. I first injected 5 per cent. cocaine, over the posterior digital nerves of one front limb without result. I subsequently injected cocaine, same solution, over the plantar nerves in the usual way, and tried especially to put the cocaine as near the nerves as possible, but without result. I afterwards made another trial, this time injecting a sufficient quantity of 10 per cent. solution over the plantar nerves, waited six minutes and then applied elastic spiral bandage in such a way as to force a portion of the blood out of the superficial parts, beginning at the hoof. The elastic bandage was left tightly applied above the site of injection. In this way I have usually secured the most profound anæsthetic effect, but in this instance there was only a very slight loss of sensation over the inner half of the pastern and apparently no effect at all over the outer half of this region. The pressure above the site of injection was continued for perhaps an hour, and most of the cocaine must have been retained in the tissues surrounding the plantar nerves.

Cocaine from the same bottle was used repeatedly on cases that had come in previously and others that came subsequently, so that my experience cannot be charged to poor cocaine.

M. H. REYNOLDS.

SOME POISONOUS PLANTS.*

WOOLLY LOCO WEED.

Astragalus Mollissimus Torr. Other names: *Loco Weed*; *Crazy-Weed* (Fig. 8).

Description and Where Found.—A silvery-white, silky-leaved perennial, 8 to 12 inches high, with an abundance of soft foliage springing out in a cluster from a short, central stem close to the ground. The flowers are pea-shaped and usually purple, the pod is distinctly two-celled. This plant is native to the Great Plains region, extending from western Texas and New Mexico northward to South Dakota and Wyoming, being most abundant in Colorado and in the western part of Nebraska and Kansas. It grows both on the open prairie and on rocky hillsides.

How Stock are Affected.—Horses, cattle and sheep are affected by loco, but the principal damage is done to horses. The effect is not acute, but in its slow progress simulates diseases caused by bacteria, worms, or other parasites or such as are caused in man by the continued use of alcohol, tobacco, or morphine. Two stages are recognized. The first, which may last several months, is a period of hallucination or mania accompanied by defective eyesight, during which the animal performs all sorts of antics. After acquiring a taste for the plant it refuses every other kind of food, and the second stage is ushered in. This is a lingering period of emaciation, characterized by sunken eye-balls, lustreless hair, and feeble movements. The animal dies from starvation, in periods ranging from a few months to one or two years.

Damage Done.—The damage done to the live-stock business by this weed is immense. As mentioned in the introduction, the State of Colorado paid out nearly \$200,000 in bounties between 1881 and 1885 in an attempt to exterminate it.

This genus contains a large number of species, and it is quite probable that many of these should be considered to be poisonous where they grow over wide areas of pasture land, and are green at periods when there is but little green grass. Over a half dozen have been reported to the Department of Agriculture as highly detrimental to the stock industry.

* Abstracted from the Farmer's Bulletin, No. 86, U. S. Dept. Agriculture, by W. J. Martin, M. D. C., Kankakee, Ill.

STEMLESS LOCO WEED.

Astragalus Lambertii (Pursh) Greene. Other names: *Loco Weed*; *Crazy Weed*; *Colorado loco vetch* (Fig. 9).

Description and Where Found.—This differs from the true loco weed most conspicuously in its more erect and branchless habit, its longer leaflets, which are linear or oblong instead of orate, and the one-celled pod. It ranges over the same territory as does the woolly loco weed, but extends farther, being found throughout the Great Plains from British America to Mexico, and it also ascends higher in the mountains, growing luxuriantly at Silver Cliff, in Colorado, at an altitude of about 8000 feet.

Symptoms.—So far as has been observed, the symptoms of poisoning are identical with those of the preceding species. The two plants are considered to be equally prejudicial to the stock-raising interests of New Mexico.

(From the *San Francisco Examiner*.)

THE HERALD AUTOMOBILE'S COMEDY RUN.

INSIDE STORY OF THE TRANSCONTINENTAL TRIP.

Pity the sorrows of a poor, old, broken-down transcontinental automobile! The machine left New York twenty-two days ago for a spirited dash across the continent, giving the horse the laugh en route. The last entry in the log of the automobile reports that fragile vehicle stalled at Buffalo, twenty-two days out, and still within the borders of the Empire State. At this rate, Mr. and Mrs. John D. Davis, passengers and crew, will be candidates for admission into the Old People's Home by the time their journey ends.

More than 3000 miles of miry country roads, mountain steeps and desert stretches, where blacksmith shops are few, yet remained to be covered. And the further the machine travels from the automobile foundry in New York the longer it takes for repairs to overhaul it.

With the throttle in one hand and a monkey wrench in the other, Mr. Davis dashed merrily away from Herald Square, New York, on July 13, intending to break the automobile record to San Francisco. As there was no record to begin with, the unfortunate Mr. Davis busied himself breaking the automobile. Each day of the twenty-two resulted in from one to five breaks of some vital part. When anything else refused to give way,

the brake broke or the gasoline gave out. The village blacksmiths along the route already covered have taken their families to the seaside, and the all-round repairers of the West are assembling at the roadside to assist Mr. Davis on his troubled way.

Here is an accurate log of the automobile, taken from the daily report Mr. Davis wired to a morning paper in San Francisco.

July 13.—Started from Herald Square, New York City, for a run of 4000 miles against time to the office of a morning paper in San Francisco. Between Gotham and Tarrytown the motor got a hot box and stopped. Used two gallons of gasoline, but still she stuck. Lost four hours waiting for ice to cool the motor.

July 14.—Broke rear cylinder, and a link in the crank shaft gave way in a chuck hole. Continued with one cylinder working until the nut dropped off the left hind wheel and lost itself in the dust. Finished the run with a fence rail in lieu of a wheel.

July 15.—With a new nut in place the automobile grew fractious and plunged into a ditch, snapping the brass casting that controls the valve of rear cylinder. Lost three hours making repairs with solder. Friction melted solder and crew towed automobile three miles to a blacksmith shop.

July 16.—Lost nut off exhaust valve of rear cylinder. Spent three and one-half hours looking for the nut. Made new one of a thumbscrew, which endured until time for another break. Tied up for the night and wondered what would happen next day.

July 17.—Piston got hot, jammed fast and the motor stuck. Took half a day to make the wheels go around, and then they squeaked. Then the brake broke and the automobile dropped anchor alongside a cornfield. "We are hoodooed for starting on the 13th," said the crew.

July 18.—Towed into Utica and laid up to wait for repairs from New York factory.

July 19.—Still waiting. During the night the automobile broke in a new place while standing still.

July 20.—New rear wheels with three-inch tires arrived from New York factory. Put them on and pulled out for Syracuse.

July 21.—Somebody has monkeyed with the spanking brushes, which slipped out of place and dislocated a few spokes. Stopped for repairs. The bolt connecting piston between the two cylinders then snapped, tore a large hole in the cylinder casing and bent the main shaft. Picked up by an ox team and

towed into Syracuse. Crew feeling somewhat depressed.

July 22.—Decided to wait at Syracuse for new cylinder from the factory.

July 26.—Hurrah! New cylinder here at last, but the men at the factory forgot to bore hole in it.

July 28.—Finished drilling the hole.

July 29.—Hole too small. Cylinder grew hot every few minutes and stalled the automobile. Made poor time.

July 31.—New nuts on inlet valve persisted in falling off. Stopped at Palmyra for new ones. Spindle in rear valve broke again. Two hours repairing it. Laid up at Rochester and had inlet valves and spindles made heavier.

August 1.—Jumped ditch, ran into stone flagging and bent forward axle. Country blacksmith worked all day and all night to straighten axle. Automobile wabbles badly. Seems to be getting groggy.

August 2.—Grounded fast near Bergen for want of gasolene. Special train arrived with one quart. Started again. Frenzied newspaper reporter stepped on tailboard and broke it. Put him off at Buffalo.

August 3.—Fixing tailboard at Buffalo.

Little remains of the original outfit beyond Mr. and Mrs. Davis, the roof and cushions. With such an appalling array of disasters in less than five hundred miles, the question arises: How many automobiles will Mr. Davis consume before reaching San Francisco? Time is another important question. By winding wagon road the distance from Buffalo, where they put the reporter off the broken tailboard, to San Francisco is all of 3500 miles.

No preparations have yet been made to welcome the automobilists, either by the paper interested or the managers of the Old People's Home. There is time enough.

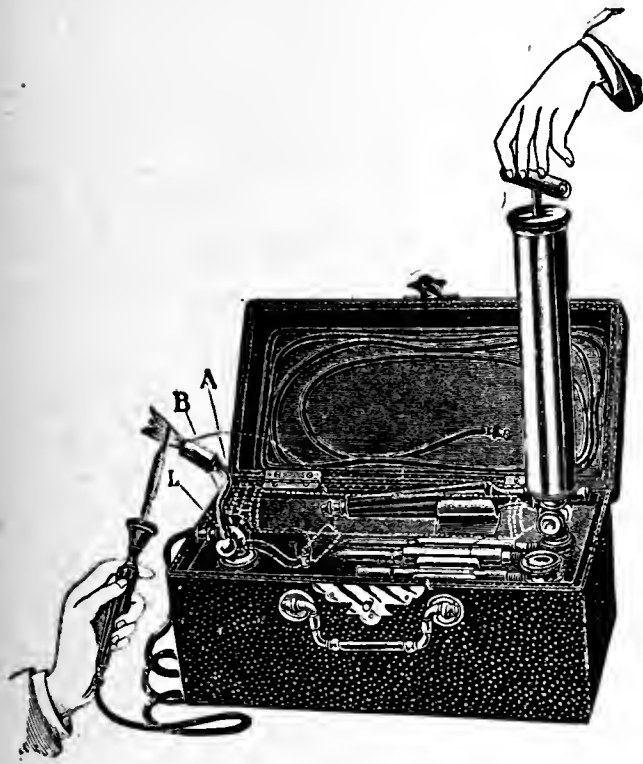
CHARLES DRYDEN.

P. S.—Since the above was in type we learn that the fiasco was abandoned at Cleveland, Ohio.

DR. C. D. MCMURDO, 10th Cavalry, U. S. Army, who has been stationed in Santiago Province, Cuba, is at home in Shadwell, Va., on a four months' furlough for the purpose of recuperation. Dr. McMurdo is an enthusiastic army veterinarian, with the elevation of the standard of the service steadily in view. He recently passed the army examination, and expects to attend the veterinary "Jubilee" in New York.

DRUMM'S BULBLESS THERMO-CAUTERY.

The illustration given herewith is that of the new thermo-cautery recently invented by Mr. F. Drumm, of 43 Park Street, New York City, so well and favorably known to the veterinary profession of the country through the excellent cautery bearing his name, and which is used by so many practitioners.



In the above instrument it is the object of the inventor and manufacturer to dispense with the bulb, since he was frequently in receipt of complaints of the degeneration and bursting of the rubber. Here the bulb has been supplanted by a pump, which works easily and effectively, and by those who have employed it a

decided preference over the bulb is expressed. There is no danger of explosion, it is easily kept clean, and it is little liable to get out of working order.

SOCIETY MEETINGS.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

(Continued from page 378.)

Dr. H. G. Patterson, of South St. Joseph, Mo., being called upon presented the following paper:

"THE PRACTICABILITY OF ANTISEPSIS IN VETERINARY PRACTICE."

This subject may be considered in relation to the favorable and unfavorable conditions peculiar to the field of veterinary surgery. At a casual glance the subject seems to present the former in a very insignificant proportion indeed, and by the most careful review of the question we must admit that the latter constitute a most formidable array.

The fact that our patients are not amenable to reason constitutes one serious obstacle to the ready application of the technique of asepsis even in our simpler operations.

Could we place our subject in proper position by a gentlemanly request to sit down here now, or just lie down on this table, or turn this way or that way, or could we induce him to take the anæsthetic by a kindly suggestion as to quiet regular breathing, closed eyes, etc., it would place us one long stride in advance of our present situation. It is true that gentleness and patience, with a certain firmness and confidence in our superiority of mind over that of any lower animal, goes far towards controlling the most nervous or vicious; but the instant we inflict pain—we arouse the instinct of self-preservation and inseparable from it.

The effort to escape, or the most vigorous defensive measures the victim is capable of, makes restraint by force our only resource. While restraint is unpleasant, unsatisfactory, even when applied in the most scientific and skillful manner, it is not entirely devoid of danger to the patient and to those who must handle him.

The difficulty in retaining suitable protective dressings confronts us immediately on concluding an operation. The external conformation and the hairy covering render the application of bandages, or adhesive strips a trying task, and if not displaced by the struggles incident to its release from the mechanism by which it has been controlled, they are at once regarded as an infringement on its personal liberty not to be tolerated, and its ingenuity in undoing our finest handiwork is only equalled by the opportunities afforded by the ignorance and stupidity of the average attendant in whose care our dumb friend must be left, and right at this point a most trying and difficult position confronts us.

The majority of us are compelled to leave our patients to the tender mercies of a class of men who by their environments and social conditions are, as a rule, neither intellectually nor morally desirable as nurses. Contend as we may for the equality of American citizens, the fact remains that a man who works long hours, frequently exposed to cold and storms—held responsible for accidents—whether due to his carelessness or not—and withal overworked and underpaid, develops habits inimical to the service required and necessary for the proper care of veterinary patients. It is also impossible to impress such men with the importance of absolute cleanliness in their services. Filthy personal habits—if nothing else—render them unteachable in this line. If fortunate enough to escape all these pitfalls, we still have the unsanitary surroundings both in city and country practice.

Filthy stalls, urine soaked, foul-smelling, without ventila-

tion, or if ventilated at the expense of warmth and protection from storms. Now, gentlemen, these are stern facts, *not dreams*; we see them every day and yet I am convinced that aseptic surgery is not only practicable, but in the interests of our patient, patron, purse, and our profession, profitable and indispensable. To offset in some measure this deplorable list of adverse conditions, we have on the other hand the simplicity of living, absence of vicious habits, rarity of nervous complications, and, above all, an inherent power of resistance to infective germs. Consider the *almost total* immunity of the horse to such diseases as anthrax, tuberculosis, erysipelas, etc. Give a surgeon such conditions in his treatment of the human family and surgery is robbed of half its dangers.

Consider again the number of ovariectomies annually perpetrated (I believe that is the proper word considering the skill of the parties usually employed in such work) on heifers and other animals, with no attempt at even ordinary cleanliness observed by butchers, and with a very small per cent. of fatalities, and we have infallible proof of this resistance to pathogenic germs. How much more may we not accomplish by the strict adherence to the principles of asepsis and antisepsis, discard the filthy stable bucket, dirty water and greasy sponge. Sterilize our instruments, sponges, hands, and prepare thoroughly our field of operation. In short, observe the full technique as approved by our best surgeons, and notwithstanding so much that seems to threaten failure, results will be both surprising and gratifying. I have refrained from any discussion of the comparative value of antiseptics. The careful and thorough application of the principle to the case in hand is of much more importance. If we cleanse everything by heat and apply good soap, brush, razor, and elbow grease, we are very near the goal. The selection of the antiseptic is, and always will remain much a matter of choice and custom, or individual experience.

Wherever the process of bacterial infection exists, whether it be in external wounds, or in internal viscera, the use and administration of antiseptics is *highly indicated*, and if directed timely, and with proper judgment and selection, nothing but decided benefit can accrue from their use.

I would deem it needless excess to indulge in a recitation of the application of antiseptics to external wounds and trauma before this intelligent audience, but permit me to call your attention to a field of application which I believe is not recognized by very many veterinarians.

I refer generally to the internal antiseptics, but *particularly to their use* in the treatment of *intestinal disorders*, especially those characterized by the presence of undue quantities of gas.

Here antiseptics work *marvellous favorable changes*, and the administration of one good antiseptic will do more good than all the 16 and 32 oz. mixtures from the use of which animals are being killed every day.

Numerous good antiseptics might be used, but my favorite in such conditions is carbolic acid in doses of 10 to 20 drops given with water and glycerine every half or one hour, according to the urgency of the case.

Salicylic acid in drachm doses is also an excellent antiseptic in such cases, but in my opinion not equal to carbolic acid.

The sterilization of the urinary passage by the internal administration of antiseptics is also a reputable procedure. Boric acid in drachm doses, exhibited four to five times daily, together with the sedative action of fld. ex. buchu, is the treatment par excellence.

I will not take up more of your time in speaking of the special administration of antiseptics, for to remember their general applicability is but to know their use in special affections.

DISCUSSION.

Dr. Stewart :—Antiseptic surgery is a subject in which I am very much interested and one which the paper has quite happily introduced. The surgeon who does not employ antiseptics in his practice is certainly laboring at a great disadvantage, and the range of its application should constantly increase. In many surgical and accidental wounds where it did not seem advisable to close the wound entirely, it was my practice to employ an old-time agent sometimes called white lotion; this compound was made many years before antisepsis was thought of, yet its antiseptic action, as well as its curative action, is well established. With reasonable care and cleanliness the veterinary surgeon can secure highly satisfactory results in the treatment of nearly all surgical wounds, and it seems strange to me that so few surgeons make full use of antiseptics in their every-day practice. There is one operation to which I will allude to where the results for me have been most gratifying, healing by first intention being commonly secured. I refer to the ordinary neurectomy for navicular and other pedal lamenesses. I would like to hear what Dr. Hansen has to say on the subject.

Dr. Hansen :—I did not come here to talk, but must say

that Dr. Patterson's point as to the power of resistance in the horse to the germs of disease is very patent. My experience in veterinary surgery certainly upholds his paper.

CHICAGO VETERINARY SOCIETY.

President Robertson called the regular monthly meeting to order on Thursday evening, May 11th, directing his remarks toward legislation, and the Veterinary Bill that was recently passed by the legislature, expressing his regret for the savage attack made upon it by the veterinary press at that time. He recited the opinion of many who are perfectly satisfied that an act more favorable to the profession in this State would not pass the Legislative Assembly at the time. Feeling that progress has been made at present and hoping that through the Board of Veterinary Examiners as provided by the bill the veterinarians will be brought closer to the legislative and executive officers of the powers that be, and through this closer communion be able to more effectively present the needs of the profession.

Dr. L. A. Merillat explained how little the opposition was to the measure, there being but three dissenting votes in the upper and seven in the lower house, while no opposition at all was evident from practitioners.

On a motion presented by Dr. O. R. Dubia, it was resolved that the society extend a vote of thanks to Drs. Robertson and Merillat for their excellent work in behalf of the measure.

The Board of Censors reported favorably on the application of Dr. Joseph Donovan and his election to membership followed.

A communication received from Dr. H. D. Gill, chairman of the committee of arrangements of the A. V. M. A., was read and referred for consideration at the June meeting.

Dr. O. R. Dubia presented the following subjects for discussion :

DR. DUBIA'S POINTS FOR DISCUSSION.

Sesamoiditis.—This should mean inflammation of the sesamoids, but is applied to other structures in that region, and may be ostitis, ligamentitis, or synovitis, any or all of them. Conformation predisposes to this disease, as shown by certain families with long pasterns and great speed. There is lameness; palpation reveals thickening and tenderness of the fetlock, and on trotting little or no flexion of the fetlock can be noticed, the knee compensating in part for the loss. It is more common in the hind legs. The soundness of the animal depends somewhat

on the part affected, but at best I would call such an animal only "serviceably sound." Hunters and hurdle horses are commonly affected.

Windgalls.—This is a distension of the sesamoid sheath which extends two inches above the fetlock or to the bifurcation of the suspensory ligament. It is due to hypersecretion of synovia and the absence of any rigid structures to prevent distention laterally. This condition cannot be called an unsoundness unless it causes lameness, which it does when distention from accumulation of synovia gives rigidity to the sheath. This is readily determined by forcing the animal to stand on the affected leg, when palpation reveals the amount of rigidity. They are common to all horses, but especially to racers. When soft to the touch it is not an unsoundness.

Anterior Bursal Enlargements.—This condition is seen only on the hind leg in the bursæ of the extensor pedis tendons in the front of the fetlock. It is generally due to falls, stumbling or knuckling. When infected they cause very acute lameness, swelling and pain. As the condition even when chronic readily yields to treatment the patient might be called serviceably sound.

Thickening of the Fibrous Structures.—This subject is almost too indefinite for consideration, including as it does all the structures of the region except the osseous, vascular, nervous and epithelial.

Knuckling.—Knuckling is an abnormal forward deviation in the direction of the phalanges, but must not be confused with straight pasterns. It is often symptomatic or may be due to contraction of the flexors. The diseases and conditions which may cause this trouble are too numerous to mention. It may be idiopathic, as seen in animals with upright pasterns. This is especially true when the animal is overworked or subjected to faulty shoeing. It is always an unsoundness.

Interfering or Malformation.—This is a condition in which the moving leg strikes or cuffs the fellow. It is mostly seen in animals with narrow chest or with a faulty conformation of the leg or foot. Weariness, weakness, overwork or faulty shoeing, may be exciting causes. The striking may be slight or only enough to part the hair, or it may be sufficient to cut and bruise the part and cause lameness. When due to malformation it is an unsoundness, but when the exciting causes prevail, it should be dealt with judiciously in justice to all concerned.

Ringbone.—This is an exostosis on the os corona, os suffra-

ginis, or both. It often causes persistent lameness, but the inflammation aborts as ankylosis sets in, movement is limited and permanent stiffness results. They are variously classified according to location as "high" and "low," and again they may be divided into "true" and "false." The latter are often due to rickets and for use should not be called an unsoundness, but must not be overlooked in selecting a breeding animal. True ringbones may be divided into articular or those involving the gliding surface, or periarticular or upon the joint and is not as serious as the articular form. Ringbones must be always considered an unsoundness, because they impair the usefulness of the animal.

Sprain of the Inferior Suspensory Ligaments.—These ligaments are commonly known as the X, Y, and V ligaments, and are located posteriorly to the pastern. When sprained severely they cause a thickening of the cortex. A sprain of these structures is usually caused by speeding, jumping or desperate traction. Animals so affected are unfit for fast and heavy work and are therefore unsound, slight sprains which terminate favorably in a few days excluded.

DISCUSSION.

Dr. Hawley: I understood Dr. Dubia to say that a windgall if soft was not an unsoundness. I have seen windgalls as large as a hen's egg, and though the horse showed no lameness and the windgalls were soft and the horse was capable of performing services all right, still it being a blemish I cannot consider the horse sound.

Dr. Dubia: I called such a horse "serviceably sound."

Dr. Hawley: Has this society adopted the expression "serviceably sound?" If so, I want to know when the terms "sound" and "serviceably sound" should be used.

Dr. Robertson: The agreement made when we first opened this discussion was that we were to continue the work until all the topics were presented and discussed, and then endeavor to come to some understanding as to when to apply the term "serviceably sound" and "sound."

Dr. Merillat: Has Dr. Hawley ever seen a copy of the rules adopted by the Stock Yard Company governing this point?

Dr. Hawley: These rules were formed by Mr. F. J. Berry, but they are of no consequence whatever.

Dr. Merillat: I think it the policy of the Horse Commission Union to call a horse "serviceably sound" that has only such defects that do not materially affect his usefulness nor value.

This society should either formulate new rules or revise the old ones, if, as Dr. Hawley says, they are of no value.

Dr. Robertson : Mr. Newgass, in his opening addresses at his sales, says there are no perfectly sound horses and hence the term "serviceably sound."

Dr. Hawley : They have a so-called Horse Commission Union at the yards which from time to time make rules which all members must adhere to. These rules are, however, imperfect, and I believe, in fact am positive, if this society would make up a set of rules governing this matter the Horse Commission would accept them. It would be a good plan to do so after this discussion has closed.

Dr. Robertson : I think it is a good suggestion to revise these rules, and would recommend Dr. Hawley on a committee, as he is familiar with the matter, and besides represents both the veterinarians and the horse dealers.

Dr. Hawley : In regard to windgalls, I would like to know if anybody has ever successfully treated a chronic case, *i. e.*, to make the legs as smooth as before their appearance. What is the recognized treatment?

Dr. Merillat : Counter-irritation and aspiration or both will, if repeatedly resorted to, cure most any bursal enlargement. Another method, though a dangerous one, is to simply lance them and allow the wound to suppurate. This procedure is always followed by great pain, swelling and suppuration, from which the patient finally recovers minus the bursal enlargement. I would, however, not recommend such treatment.

Dr. Dyson : I opened up several of them and never had any serious results, and got rid of the windpuffs. I use an antiseptic and it leaves no scar.

Dr. Robertson : I know of a case that was cured by a trotting horse trainer by simply bandaging.

Dr. Hawley : I would say that a man that can treat windgalls successfully has "a good thing." I have a horse in my possession now that cannot be sold for a respectable price because of windgalls, as a horse like that is considered second-handed.

Dr. Merillat : Dr. Dyson's treatment for windgalls is indeed remarkable. It is difficult to understand how such a large synovial surface can be exposed to external influences without some of the typical disturbances. The only way to account for it is that his operations were strictly aseptic and that no invasion was permitted during the healing process.

Dr. Dyson : I have one case at my barn now with two wind-galls that I opened, and I will show them to you, so that you can judge for yourself.

Dr. Robertson : As to anterior bursal enlargements, the doctor says they are usually found in the hind limb. I have seen very bad cases in the fore limb.

JOS. B. CLANCY, *Sec.*

MAINE VETERINARY MEDICAL ASSOCIATION.

The regular meeting was held in Bangor, July 12th. In the afternoon a clinic for small animals was held at Dr. Murch's office. Besides numerous minor operations, Dr. Murch demonstrated a very simple and successful method for ovariectomy in the bitch.

At 7.30 P. M. a meeting was held in the Bangor House. Both President and Vice-President being absent, Dr. Russell was elected chairman *pro tem*. The following members answered the roll-call: Drs. Russell, Cleaves, Joly, Murch, Dwinal, Freeman and Salley. The minutes of the previous meeting were read and accepted, and the financial standing of the society was discussed. The Secretary was instructed to collect all dues. It was voted to hold a special meeting at New York on Sept. 5th.

Dr. Joly was elected representative to the meeting at New York of the American Veterinary Medical Association in September.

It was then voted to adjourn to meet at Waterville in October.

I. L. SALLEY, *Secretary*.

NEWS AND ITEMS.

CHICAGO'S SALE RECORD FOR 1891: 118,754 horses sold; 40,000 exported.

DR. SAMUEL G. HENDREN, B. A. I., Indianapolis, Ind., was recently married to Miss Marion Weber, of Lewistown, Pa.

JAMES M. ROSE, a non-graduate ridgling castrator of note, died at Wilkinsburg, Pa., July 15.

J. W. FERGUSON, V. S., Ontario, '81, died from injuries by being kicked by an equine patient at Bay City, Mich., in June.

"IN A HOSS TRADE, do unto the other feller as he would like to do unto you—but do it fust."—*David Harum*.

"ACCEPT MY CONGRATULATIONS on the literary success of the REVIEW."—*H. D. Stebbins, V. S., West Winfield, N. Y.*

"I ENJOY THE REVIEW VERY MUCH, and have learned many useful things from it."—*W. A. McClanahan, D. V. M., Redding, Iowa.*

DR. GEORGE E. NESOM, Professor of Veterinary Medicine at Clemson College, South Carolina, was married July 10 to Miss Bessie O'Brien, of Starkville, Miss.

THE Citizens' Business League of Milwaukee, Wis., has already sent out literature showing the advantages of that city, and asking the A. V. M. A. to meet there in 1900.

IT is believed that a commission of British army officers is at present in this country looking over the mule markets with a view to making large purchases of mules for use in South Africa. They were in New Orleans this week.

DR. W. J. MARTIN, Kankakee, Ill., President of the State Association, has been added to the staff of collaborators of the REVIEW. Dr. Martin is a hard student, a close observer, and a graceful, entertaining writer, and our readers are to be congratulated upon the acquisition.

MANY local veterinarians have written and endorsed the article in the August REVIEW entitled "Contemptible Method of Practicing Veterinary Medicine." If the veterinarians of New York do their duty the exciting cause of that article will soon have ceased to exist.

WE are informed that the announcement in the July REVIEW that Dr. H. L. Ramacciotti had been appointed veterinarian to the Greater American Exposition, to be held in Omaha, Neb., this summer, is incorrect, and that Dr. G. R. Young, of that city, received the official appointment by the Executive Committee, Dr. R. receiving the assistantship position.

"THE NEW YORK SUN" is at war with "the *Automobile Gazette*" (formerly the New York *Herald*), showing that its "personal" advertisements constitute an obscene directory which disgraces American journalism. With a record of outrageous morality, its attacks upon the horse industry of the country can have little effect.

DR. L. A. MERILLAT'S OPINION OF IODOFORM.—"Iodoform must be regarded as one of the most valuable antiseptics for veterinary surgery. It promotes granulation, limits the exudates, relieves pain, is practically non-toxic, and, besides, unlike other dry antiseptics, it does not prevent immediate union when caught between the edges of wounds."—(*Jour. Comp. Med.*)

"WE could not think of doing without your valuable journal; it contains so many practical hints and valuable communi-

cations. When we get 'stuck' on a case we search the REVIEW and always find some article that gives us some light, if not the information wanted."—*Smith and Scripture, D. V. S., Frankfort, Indiana.*

It is announced that the first number of *The Veterinarian and Farrier of Australasia* will appear on October 15. It is to be a monthly journal for veterinarians, horse and cattle breeders and farriers, and in a letter from the publishers, H. Greatorex & Co., 17 Butchers' Lane, Melbourne, Australia, the objects and character of the magazine are stated as follows: "It will be our endeavor to maintain as high a pitch of literary and practical excellence as possible, and with the federation of our different provinces the journal has an influential career in front of it."

JOHN G. SLEE, D. V. S., late veterinary surgeon to Seventh Army Corps, stationed at Havana, Cuba, has returned to the United States, and is awaiting assignment to duty by the Bureau of Animal Industry, he having been in charge of the Brighton Abattoir when he volunteered his services to the War Department. Dr. Slee had some peculiar and interesting veterinary experiences while with the army, both in garrison and field, and he has promised to favor the readers of the REVIEW with their details.

"THE AUTOMOBILE GAZETTE," formerly the New York *Herald*, chronicles every turn of the wheel of this new and unsatisfactory horseless carriage, incidentally giving a thrust at the horse whenever opportunity offers, being too thick to foresee that the soliped will continue to enjoy the love of man, and be his faithful servant, when his maligner is gone and forgotten. It is difficult to understand why American horsemen continue to put dollars into the pockets of its alien publisher which he uses to sport about the French capital in his pet vehicle.

PECULIAR SICKNESS OF A TRAINLOAD OF HORSES.—A trainload of 560 horses, which Powell Brothers were bringing from North Yakima, Wash., to South Omaha, was unloaded at Billings, Mont., for water and feed. They had been given no water since leaving Spokane, thirty hours previous. They were at once fed hay and water was run into the troughs. Soon after feeding and drinking the horses began to go into spasms and many died. Twenty-hours later about half were dead, and it was feared that all would die. It was noticed that the horses were scouring when they came in, but no one could offer an explanation of the cause of the deaths. The stomachs of several have been saved for analysis.—(*Breeders' Gazette.*)

ACTION OF CREOLIN ON CATS.—A Brooklyn woman was the owner of one Tom cat and three kittens, the mother of the kittens and their maternal aunt having been destroyed by chloroform on account of being affected with mange. The kittens and their father showing some symptoms of the same disease, were submitted to a bath composed of creolin, 1 part ; water, 25 parts. In twenty minutes two of the young ones were deathly sick, described as lying upon their sides and gasping for breath, with vomiting and tetanic convulsions ; the third with vomiting, staggering gait, abstinence from food, very fast pulse, and was destroyed the next day, the other two dying during the first afternoon. The vigorous parent showed evidence of illness as early as the kittens, but being more resistant, did not at once succumb. When seen by a veterinarian two days later, he had a temperature of 106° F., pulse 160, with spells of difficult respiration and threatened heart failure. In spite of stimulants and nutrients, he was found dead the next morning. To those who have regarded creolin as a non-poisonous agent, this case may be interesting as showing its action upon members of the feline family.

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EVERY SUBSCRIBER TO THE REVIEW,

whose subscription terminated with the March number (closing volume XXII) should renew the same NOW. We must not lose one.

NOVEMBER, 1894, REVIEW WANTED.

To complete my file I would like to secure No. 8, Vol. XVIII of the AMERICAN VETERINARY REVIEW. Any one having an extra copy of that number please address H. D. STEBBINS, V.S., West Winfield, N. Y.

BACK NUMBERS REVIEW FOR SALE.

Volumes 2, 4, 8, 9, complete) ; April, '79, '81, '82, '83 ; May, '79, '81 ; June, '79, '81 ; July, '79, '81 ; August, '79, '81, '83 ; September, '79, '81, '83 ; October, '79, '81 ; November, '79, '81, '83 ; December, '81, '82, '83 ; January, '80, '82, '83, '84 ; February, '80, '83, '84 ; March, '83, '84.

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BACK NUMBERS REVIEWS WANTED AND FOR SALE.

In making up my REVIEWS to be bound I am short of the following numbers : Vol. XIII, July, September, October (1889). As I cannot obtain these from the publishers, I will give the regular rates or a slight advance, or will exchange any of the following which are duplicated in my file : Vol. XIV, October (1890) ; Vol. XIX, February, March, and April (1896). Address ROBERT W. ELLIS, D. V. S., 509 W. 152d Street, New York City.

AMERICAN VETERINARY REVIEW.

OCTOBER, 1899.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

EUROPEAN CHRONICLES.

THE SEVENTH INTERNATIONAL VETERINARY CONGRESS.
—Baden-Baden, the charming little city of the great duchy of Baden, is free from the gathering of scientists that filled the rooms of her great "Conversation Hall," to resume a series of pleasures, which seems to have been selected very *apropos* the week of the celebrated horse racing following that of the gathering of veterinarians from all over the world.

Yes, all over the world, and out of nearly 900 adherents that had become members, and of some 500 that were present, representatives from almost all nations were there. Let me mention them: Egypt, Algeria, Argentine Republic, Belgium, Bulgaria, Canada, Denmark, Germany, France, England, Holland, Jamaica, Japan, Italy, Lichtenstein, Morocco, Transvaal, Norway, Austria, Orange Free State, Portugal, Roumania, Russia, Sweden, Switzerland, Servia, Tunisia, Hungary and Venezuela. The United States of America was well represented. Dr. Norgaard, of Washington, represented the Bureau of Animal Industry; Prof. Frothingham, of Harvard University, represented the Massachusetts Veterinary Medical Association; I had the honor to represent the American Veterinary Medical Association.

Delegated by this body, I would have liked to make a report in time for the annual meeting of last month, but, unable to do it, I have thought the REVIEW the best means to present to the

majority of the members a concise account of the work done.

Before doing it, however, let me state that the Congress has been organized by Dr. Lydtin, the intimate councillor of the great duchy of Baden, and that to him is due the great success of the Congress, a fact which could not be otherwise, considering the high standing held by the doctor among his German as well as foreign *confrères*.

On Sunday, August 6th, the first reunion took place, it consisting in a general reception of all the members present.

The following day Congress set in in earnest to work. In the presence of the Secretary of the Interior, who was named President of Honor, Dr. Dammann, of Hanover, read the regulations of the Congress, and the nominations of the officers to various sections were made as follows :

Presidents : Nocard, from Alfort ; Hutyra, of Budapest ; Schütz, of Berlin ; Degivé, of Brussels ; Hers, of Berne ; Esser, of Gottingen ; Dammann, of Hanover ; Siedamgrotzky, of Dresden.

Vice-Presidents : Noyer, from Berne ; Malm, from Christiania ; Ostertag, from Berlin ; Liautard, from New York ; Siegen, of Luxembourg ; Cope, of London ; Holtzmann, from Kasan ; Nogueira, from Lisbon ; Locusteanu, of Bucharest ; Hers, of Berne ; Rockl, of Berlin ; Norgaard, of Washington ; Bång, of Copenhagen ; Stublé, of Brussels ; Arloing, from Lyons ; Perroncito, from Milan ; Leblanc, from Paris ; Rudowsky, from Brünn.

Secretary-General : Dr. Casper, from Hochst.

Secretaries : Dr. Olt, from Hanover ; Siegen, from Luxembourg, and Garing, from Karlsruhe.

As soon as I had received the communication from the President and Secretary of the American Veterinary Medical Association, conferring upon me the honor of being the delegate of the association, I put myself in communication with Dr. Lydtin, and, fearing that most of the excellent reports that were made might not be read by our English-reading friends (it having been decided at first that these reports should be published

only in German and in French), I proposed to the doctor to translate them into English. I received his kind authorization. The work was no small undertaking, but it is gratifying to me to have been allowed to perform it, and that with all its weak points I am able to place it at the disposal of our friends, a work which at the proper time will be placed in the archives of the association.

The various subjects presented to the Congress were highly important, the discussions that took place between the leaders of veterinary science were most interesting and instructive, and the resolutions which were adopted show the great results that may be expected from this international meeting.

The following are the resolutions adopted; many of them are of the utmost importance at the present day to the veterinary profession of America, principally those of the 3d, 5th, 6th and 8th subjects. The question relating to veterinary instruction is very valuable, and no doubt our veterinary colleges will not fail to read them with interest and benefit.

I.—Preventive Measures Against the Spread of Epizootics in Consequence of International Cattle Trade.

The Seventh International Veterinary Congress considers an effective fight against epizootics, in the interest of the individual States as well as of the public economical welfare, both useful and desirable. The means to be employed are a uniform application of scientific principles and an efficient regulation of the veterinary department, of the intelligence department respecting epizootics, and of international cattle trade.

But the Congress, considering the difference in the economical development and the conditions of traffic, as well as the dissimilitude of veterinary organization in the separate countries, does not think the moment has yet come for laying down definite principles of an international agreement.

II.—The Prevention of Foot-and-Mouth Disease.

It is in the interest of an effectual prevention of foot-and-mouth disease:

(1) By all and every means to prosecute the scientific investigation of this disease.

(2) To exclude the infected district from free traffic.

(3) To submit the traffic in cattle for sale to a strict veterinary police control in such a way that the cattle of cattle-traders should be placed under the inspection of the police before sale.

(4) That buttermilk and all other remnants of milk should not be supplied habitually from the coöperative dairies until they have first been submitted to such a temperature as shall insure the extinction of infectious matter.

(5) That the authorities should be required to order in certain cases the slaughter of animals, the proprietors receiving compensation for the resulting loss.

(6) To regulate in the whole country, as far as possible, the initiation, the continuation and the completion of the needful veterinary police rules, whereby special weight is to be laid upon the strict carrying out of the separation and disinfection of the clothes of the attendants, etc.

III.—The Newest Suggestions for an Effectual Meat Inspection.

(1) The Congress desires to draw the attention of the Governments of the States officially represented to the necessity of the general introduction of compulsory inspection of meat.

(2) None other than certificated veterinary surgeons can be summoned as professional men to inspect meat. In places where it is still impossible to establish a regular veterinary service, lay inspectors with limited powers may be provisionally appointed. These must be trained for their profession as much as possible by veterinary surgeons in the larger slaughter houses, be examined by the State, and constantly be controlled in the exercise of their function by veterinary surgeons. Only veterinary surgeons should be appointed as professional inspectors of meat and as the directors of slaughter houses and cattle sheds.

(3) Instruction in meat inspection at the veterinary colleges must be improved and extended. Meat inspection should be made as far as possible the object of practical examination for a veterinary diploma.

This examination, too, must take place for the obtaining of the diploma as a veterinary surgeon. Moreover, it is required in this case that the candidate has worked at least eight weeks in the meat inspection of a large public slaughter-house, standing under regular veterinary supervision.

(4) As a matter of principle, all inspection of meat must be founded on sure scientific bases and experimental rules, which should be agreed upon by an international understanding.

(5) Inspection must be extended to all kinds of butcher's meat and be introduced everywhere. It must include all beasts for the butcher and every kind of meat that serves for human food and public use, whether it be destined for public sale or private consumption.

(6) The efficiency of meat inspection is only perfect in those places where public slaughter-houses exist together with compulsory slaughter. On that account, their erection in as many communities as possible is advisable.

(7) It is necessary for the inspection of fresh slaughtered meat coming from outside :

(a) that the flesh of cattle and horses should be brought in at least in quarters, that of swine only in halves, and that of all other animals in an undivided state, and further

(b) that the most important intestines should be in natural connection with the meat.

Fresh meat introduced from foreign countries is subject to the same requirement.

Preserved meat from foreign countries can only be imported if it is kept in a trustworthy, sanitarily unsuspicious manner and its harmlessness can be affirmed with certainty.

(8) Meat authorized for consumption after inspection must be marked in a proper manner (stamping, leading, etc.)

(9) Meat proved to be harmless but of inferior quality must be sold under declaration at certain places (Friebänke) under the supervision of the authorities.

(10) The introduction of a universal and compulsory insurance for slaughter cattle under State control is urgently required in the interest of meat inspection and the stamping out of cattle diseases.

(11) The results of meat inspection should be collected for scientific and economical purposes in statistics arranged on a definite plan, in which international uniformity should be aimed at.

IV.—Final Result of the Endeavors to Fix a Uniform Anatomical Nomenclature in Veterinary Surgery.

The Congress agrees to the propositions of the Nomenclature Commission and wishes to employ the money necessary for the place the 2500 marks reserved for this purpose. Further needful publication of a Uniform Anatomical Nomenclature: in the first amounts should either be requested from the veterinary societies or paid from the Treasury of the Eighth International Congress.

V.—The Prevention of Tuberculosis Amongst Domestic Animals.

(1) The prevention of tuberculosis in cattle is urgently needed.

(2) The extinction of bovine tuberculosis on the part of the owners (voluntary extinction) is practicable and should be universally aimed at. It demands the slaughter of dangerous tuberculous beasts as soon as possible, as well as careful protection of calves and healthy animals from infection.

The voluntary extinction of bovine tuberculosis should be encouraged by the State through the dissemination of correct views respecting the character of tuberculosis, respecting the modes of infection, and the importance of tuberculin inoculation and be supported by State grants.

The best means hitherto known for the prevention of tuberculosis among domestic animals is tuberculin.

Tuberculin should only be supplied under State control. In any case it should be given to veterinary surgeons alone.

(3) A State prevention of bovine tuberculosis is thoroughly to be recommended.

If it is applied with a certain caution, it can be carried out and will hinder the further increase of the disease and will gradually stop it.

The prevention requires:

(a) the obligation of the veterinary surgeon to give the legal notice of every case of proved tuberculosis in the exercise of his practice;

(b) the quickest possible slaughter of dangerously tuberculous animals (particularly those animals which are affected with mammitis, tuberculosis of the matrix, and of the intestines, as well as pulmonary tuberculosis), compensation being granted by the State, and the prohibi-

tion of the return of buttermilk from the coöperative dairies, until it has been sterilized.

VI.—The Use of the Flesh and Milk of Tuberculous Animals.

A. Of the Flesh.—Granted, that a general compulsory inspection of slaughter animals exists before and after slaughter, the following measures are to be prescribed in view of dangers for the health of the people, which may be connected with the consumption of the flesh of tuberculous animals :

(1) Those professional men who carry out meat inspection are expected to examine the slaughtered animals and so to give a guarantee that every case of tuberculosis among the slaughtered animals and in every such case the spread of the tuberculous process will be accounted for with certainty.

(2) The most important part of the meat inspection is the sure detection and the perfectly uninjurious removal of the organs that have been changed by tuberculosis, together with their appendages.

(3) With regard to the flesh of tuberculous animals, the parts affected with tuberculous centres and bound by the corresponding lymphatic glands are to be treated in the same way as the tuberculously altered organs.

If the tuberculous alterations in the meat are confined to the lymphatic glands situated in it, the muscle may, after cutting out the bones, joints, vessels and lymphatic glands and adequate dissection, be handed over, in a sterilized condition, to be used for food.

In the case of fat animals, the melting out of the fat tissue that has been separated with avoidance of the tuberculous centres is likewise permitted.

(4) In the case of local tuberculosis and in that of general tuberculosis healed and limited to the organs of the cavities, the meat may be dealt out raw to be used as food.

If the tuberculous process in the intestines is of considerable extent, the obligation to declare it is to be insisted on.

(5) The whole of the meat, except the melted fat, is to be withdrawn from use as human food, if there exist marked emaciation or the signs of very recent infection of the blood (tumor in the spleen, and swelling of the lungs, liver, spleen, or kidneys).

(6) In cases where the local character of tuberculosis and the harmlessness of the meat are doubtful (especially when there are tuberculous caverns and incipient derangement of nutrition), the whole of the meat is to be sterilized before being handed over as fit for food.

(7) The sterilized meat and the melted fat is to be sold under declaration.

B. Of the Milk.—(1) The cows, goats, etc., kept for dairy purposes are to be subjected to regular veterinary control.

(2) The milk of tuberculous animals is not to be used for human food, if the animals are emaciated or affected with tubercles in the mammaræ.

(3) In accordance with the mode of proceeding in the kingdoms of Denmark and Sweden, the emaciated and tuberculous dairy animals are to be immediately removed from the farms and destined for slaughter, compensation being given to owners.

VII.—The Prevention of Swine Epizooties.

(1) Infectious diseases of swine must be combatted separately, by veterinary police, in such a way that swine plague and rouget should be dealt with on different lines.

(2) The veterinary police regulations against swine plague should consist chiefly in the slaughter of sick pigs and in the disinfection of the infected yards. Slaughter is specially recommended in those districts, which are only temporarily infected with the plague.

The various methods of preventive inoculation, which have not yet been sufficiently tested in the case of either of these diseases, are only recommended for those districts, in which the swine diseases have thoroughly established themselves.

(3) In order to combat rouget among swine, besides the general measures of sanitary police, it is to be recommended that all animals exposed to the contagion should be inoculated; the inoculation should take place under the surveillance of the veterinary police.

Lastly, it is desirable that vaccination should be compulsory in places where rouget is constantly reappearing.

VIII.—The Extension of Veterinary Instruction.

The Congress resolves:

(1) That the students of veterinary medicine ought to possess the certificate of university maturity;

(2) That the duration of the studies ought to be at least 8 terms;

(3) To impress upon the instruction a more practical direction;

(4) That the study of veterinary medicine ought to extend to all animals useful for agriculture;

(5) That it will be created in the veterinary schools of the sanitary institutes intended for the instruction and experimental study of etiology and prophylaxy of diseases and particularly of epizooties;

(6) That the instruction of meat inspection requires a special instruction of a practical character in a public slaughter house.

IX.—Determination of the Time and the Place of the Eighth Congress.

The next Congress will take place in 1905 at Budapest. The adherents of the Seventh Congress, that have come from the said city, will be entrusted with the organization of the Eighth.

And now my share of the work is completed. To enter into the minute deliberation of the subjects treated would carry me beyond the limit that the REVIEW can allow me, but I hope that, incomplete as it is, this concise *résumé* may be sufficient to show that the American veterinary profession has taken its place among all future international veterinary gatherings and secured the proper place that is due to her. A. L.

A TWO-YEAR VETERINARY COLLEGE has been started at Nashville, with a non-graduate as promoter. The announcement gave names of prominent local veterinarians in the faculty, which they promptly disclaimed. If the proposition was not amusing it would be disgusting.

THE ANTIVIVISECTION CRAZE.

In an able editorial on the antivivisection crusade now being carried on throughout the country by these misguided people, the editor of the *Western Druggist* says: "How irrational and one-sided the rabid antivivisection agitators are is made more clear by showing what forms of cruelty to animals they do not oppose. While doing all in their power to prevent the progress of medical science by the suppression of vivisection in the laboratory, these antivivisectionists do not seem to recognize any cruelty in hunting, pigeon shooting, fishing, imperfect housing of live stock, etc. One special form of vivisection has been pointed out by some of our medical exchanges, but this never seems to have been mentioned once by the anti-science crusaders." According to the U. S. Census report of 1890, the number of castrations performed annually upon domestic animals at that time was estimated as follows: Horses, 300,000; sheep, 3,000,000; cattle, 4,000,000; swine (male and female) 50,000,000. Considering the large increase in our animal industry, and then adding the operations performed upon dogs, cats, fowl, etc., it is safe to place the total number of castrations per year at not less than 100,000,000. Now let it be remembered that these operations are performed by ignorant, unskilled persons, devoid of all surgical or anti-septic knowledge, with instruments the rudest, without the use of anæsthetics, and often in a spirit of brutality. Would not this be a good field for the foolish, sentimental "friends of our dumb friends" to make a first beginning, giving the scientific veterinarian graduated from the vivisection laboratory a chance to introduce some reform measure in the cruel practice here briefly pointed out?

W. J. M.

ANOTHER JOURNAL IN THE FIELD.

The initial number of the *Journal of Veterinary Science* made its appearance in August, with Dr. R. A. Archibald, of San Francisco, Cal., as editor-in-chief. Although we received

notification that a copy had been forwarded, it has not been received. We hasten, however, to congratulate the publishers upon their display of pluck in entering a field already enjoying more literature than the material support of the profession of the country guarantees. It may be that a journal conducted upon different and better lines than those which have held the fort for many years will be better appreciated and supported, but spurts of special enterprise in veterinary journalism in this country have met with such unsatisfactory response as to break our faith in the proposition. We wish the new venture every possible success, and trust that it may find the path already broken a pleasant and profitable one.

ORIGINAL ARTICLES.

OBSTETRIC RECORDS.

SURGICAL AND OBSTETRICAL CLINIC, NEW YORK STATE
VETERINARY COLLEGE.

BY W. L. WILLIAMS, PROFESSOR SURGERY, ETC.

RUPTURE OF THE UTERUS FOLLOWED BY FATAL SEPSIS (MARE).

(1680) Patient a common bred bay mare of medium size, had completed the ordinary term of pregnancy without incident and labor began March 27, this year.

The owner discovered that proper progress in parturition was wanting and inspection revealed an anterior presentation, dorsum superiorly with head deviated to one side.

Becoming alarmed, the owner resorted to force, and with the aid of neighbors pulled the foal away (dead), causing an incomplete rupture of the perineum, and apparently a severe strain of the loins, rendering it extremely difficult for the patient to get up, and locomotion almost impossible, besides causing a rupture of the uterus, not discoverable during life, which brought on a fatal termination.

The mare was presented at the free clinic on March 30, in a

repulsive condition ; the wounded perineum was greatly swollen, begrimed with faecal matter, suppurating and foetid, the tail besotted with filth, the patient tottering as she walked.

Cleansing the external parts, a manual exploration of the uterus revealed metritis, and in the non-gravid cornua the placenta was found still attached. This was removed and the uterus washed and disinfected.

Irrigation and disinfection (2 per cent. creolin) was continued daily, with the internal administration of tonics, and for a time the patient apparently improved, but on April 4 seemed decidedly worse, with inappetence, fever and colicky pains, which continued until midday on the 7th, when she died. Autopsy, two hours later. The injured perineum was healing rapidly, and in good condition. Extensive metro-vagino-peritonitis, with strong adhesions between uterus and pelvic flexure of the colon, the perivaginal connective tissue was highly inflamed. Beneath the uterus and anterior to the urinary bladder was a series of adhesions between the uterine and parietal peritoneum, interspersed with abscesses filled with foetid pus and detritus, and having gangrenous walls. These abscesses communicated with the uterine cavity by a narrow opening, which would admit an ordinary lead pencil. This was clearly the source of the fatal infection, and had evidently been caused by the force used in the extraction of the foetus, not as directly probably as is generally supposed, but by the adhesion of a section of the uterine wall to the foetus, and being drawn backwards into the pelvis in a fold, where it became impinged between some resistant part of the foal and the pelvic brim.

Numerous veterinary obstetrists record successful delivery of mares by this method, and some go so far as to recommend it as the proper procedure. We have had occasion to observe the results of several of these deliveries, though never attempting one ourselves, and have not known either mare or foal to survive in any case. Neither do we in these cases of dystokia attempt to correct the deviation of the head unless it be very slight, because in the severe cases we usually have found a wry neck.

We prefer to remove subcutaneously the more exposed leg and shoulder, remove one or two of the ribs thereby exposed, eviscerate, and then apply moderate traction, or correct the deviation as we may elect.

In this mutilated form the remains of foal pass out readily with head bent back, since in this lessened volume the resistance is no greater at any one point than if the presentation were normal and foetus entire. On the other hand if we desire to rectify the position, the foetal remnant is so limp and flexible that mutations are easy.

With such a plan, our results have been highly satisfactory.

The case suggests, too, how easy perforations of the uterus may occur which we can not discover, *intra vitam*, and indicates that in cases of metritis, even with retained placenta, we should still search carefully for wounds of small size, especially on the genital floor.

CHRONIC METRITIS IN MARE—RECOVERY.

(1659) Patient a common bred bay mare, aged fifteen years presented March 10, 1899, owing to an abundant, dirty white, thick discharge from the vulva, which soiled the tail, thighs and perineum. The discharge had existed for some weeks. The mare had bred two or three years before, but since that had failed of impregnation. The uterine cavity contained about two gallons of pus, the walls were thick, soft and inert.

The pus was evacuated, the cavity irrigated with water, and then with 1-2000 corrosive sublimate solution.

March 12. Uterus filled as before, emptied and dressed in same manner.

March 16. No improvement, changed treatment to 2 per cent. creolin, and packed uterus with cheese cloth (about ten yards) wrung from creolin solution.

March 19. Much improved, cheese cloth still *in situ*, and yielding abundant creolin odor, pus scarcely perceptible.

March 23. Patient had expelled packing on previous day. Uterus empty, the walls more nearly normal, the surfaces almost in contact. No pus. Treatment repeated.

March 25. Condition unchanged. Irrigated uterus with creolin, packing discontinued, patient discharged, since which she has continued well.

The intractable nature generally of chronic metritis in the mare, and the very rapid recovery in this instance, is strongly suggestive of the value of constant antisepsis by some convenient form of packing, which maintains the antiseptic action continuously.

PROLAPSUS VAGINÆ, DYSTOKIA AND RETAINED PLACENTA IN
A EWE.

(1765) Patient a badly nourished ewe, one year old, very weak and emaciated, presented at clinics, April 25, 1899, account of debility and prolapsus of vagina, supposedly not pregnant.

On April 26, a lamb's feet protruded from vulva. Exploration showed an anterior presentation, vertebro-sacral position, head deviated laterally. The deviation was corrected, the foetus extracted, and, the placenta being strongly adherent, was left *in situ*, and genitals irrigated with 1-1000 sublimate solution. The prolapsus of the vagina, with suppurative vaginitis, continued, the placenta remained adherent, while the small size of the ewe, with the swollen vagina, prevented manual detachment of the placenta. Accordingly the uterus was injected once daily with 1-1000 sublimate solution, the injection being facilitated by partly suspending the ewe by the hind legs during the operation.

The vagina was dusted with iodoform after irrigating. The placenta gradually sloughed away, the vaginitis and prolapsus abated, so that in ten days the patient was discharged recovered.

PROLAPSUS VAGINÆ IN A EWE.

(1725) Patient one of a herd of one hundred pregnant ewes, four of which had been similarly affected and all succumbed.

A large Dorset ewe in good condition, and far advanced in pregnancy, presented April 15, 1899, with severe prolapsus vaginæ, the parts much swollen, inflamed and suppurating. The owner had forcibly retained the parts by a strong suture through vulvar lips. The vaginitis and suture caused frequent and severe expulsive efforts. The affection had continued for

some days. No cause was known. The ewe had been well fed on clover, hay, corn, fodder and oats, and kept confined.

The vulvar sutures were removed, the vulvo-vaginal canal irrigated with 1-1000 sublimate, and this followed by dusting the parts over with iodoform and tannin.

This treatment was continued daily, the condition of the patient improving rather slowly, there being extensive suppuration and considerable straining, without, however, much prolapse.

By April 23d there was well-marked improvement in every respect, and on May 4th she had so far recovered that treatment was discontinued, but fearing possible complications in parturition the patient was held for observation.

On May 14th she gave birth to two large healthy lambs, and on the following day was discharged.

Our experience with this prolapsus vaginae, which had assumed somewhat the character of an enzoötic, suggests that the chief indications in such cases are rather cleanliness and disinfection, with local anodynes, than mechanical repression and irritation of the affected parts.

ON THE IMPORTANCE OF KEEPING A CASE BOOK AND REPORTING CASES.

BY JOHN J. REPP, D. M. V., STATION VETERINARIAN, IOWA STATE
COLLEGE, AMES, IOWA.

A Paper presented to the 36th Annual Meeting of the American Veterinary Medical
Association.

The part of my subject which I wish to emphasize especially is the latter part, but as it is necessary to keep a case-book in order that an intelligent report of a case can be made I shall speak of that feature first.

A case-book is a book in which the veterinarian keeps a record of the cases which he treats. For the purpose there may be used a well bound blank book, ruled or unruled, and provided with a few pages for indexing names of owners. This book may be provided with a canvas or oilcloth cover so that it

may be carried on visits without injury. The case-book should be taken along on each visit and the record made at the time of examination. When it is not at hand a few notes should be made and the subject elaborated on return to the office.

There should be entered in the case-book, (*a*) the description of the patient; (*b*) history of patient, including previous illness; (*c*) environment; (*d*) history of present illness, including treatment given by owner or others, if any; (*e*) etiology; (*f*) present symptoms, including what is learned from particular examination of the region complained of, and of all the vital organs and functions of the body; (*g*) methods of diagnosis; (*h*) diagnosis; (*i*) prognosis; (*j*) detailed description of treatment; (*k*) results of treatment; (*l*) history subsequent to illness; (*m*) results of macroscopic, microscopic, and bacteriological examination post mortem.

This outline should not be printed in the blank book, but should be carried in the memory and the record made in accordance with it. The book should be the simplest possible. A printed outline is undesirable. The requirements of each case so vary that headings and subheadings are misleading rather than helpful, and often divert the attention to unimportant details. In addition any peculiarities not included in the usual outline should be made a matter of record. All these details are essentials in the production of a case record of value and none should be omitted.

The record should be faithful. Mistakes as well as right judgment and good care should be recorded. A garbled record defeats its own object. It should be technical and scientific. Here the veterinarian should practice the use of scientific rather than vulgar terms. The sentences should be concise, yet their meaning unmistakable. The record should be absolutely private. The privilege of reading it should not be granted to anyone.

The advantages which accrue from a systematic and technical making of case records are :

First.—It engenders more careful and systematic observa-

tions, which will lead to a more reliable diagnosis, make the practitioner more accurate, and increase his ability. A careful man is his own severest critic and if he writes things down, even for his own eye only, he will be more exact than he would otherwise be.

Second.—It enables the veterinarian to treat his case more skillfully. He always has the carefully recorded facts of the case before him and is furnished with material of much more value than he would have if he relied solely on his memory. The patient is not subject to the hazard of guesswork on the part of the practitioner during the progress of the disease. A clear record enables the practitioner to study his cases at leisure, and to work out the meaning of a symptom or group of symptoms by a purely intellectual process.

Third.—It furnishes material for comparison with conditions under present observation, the teachings of text-books, and the dicta of current literature, so that profit may be derived in treating a patient in hand from the error or the merit of the treatment of a patient suffering in a similar way at some previous time. This is especially valuable in case of a new disease.

Fourth.—As records accumulate the types of disease in a given locality may be studied, and the most efficient therapeutics learned by an experience, which, if not formally set down, is in the main forgotten.

Fifth.—All successful and eminent practitioners of human medicine habitually keep a case record. They recognize such practice as essential to the highest grade of work. If we are desirous of obtaining the recognition their profession has secured, we must make use of their methods.

Sixth.—A case-book well kept affords one the consciousness of a duty well and satisfactorily done, of having accomplished something that is above the ordinary. It is a point of differentiation between quackery and the scientific practice of medicine. One of the greatest satisfactions of life is the reflection that something good has been done, and a series of case-books

is something that can in later life be pointed to with pride as a monument to industry and painstaking care.

Seventh.—If a case record is kept as it ought to be there will always be at hand, in convenient and reliable form, material to be utilized in reporting cases. And this brings me to the second, and perhaps the more important part of my subject.

The cases reported should be those which are somewhat out of the regular routine. There should be something about them which is unique and which teaches something new. Yet we should not be too critical in this respect, for, in order to discover a rule or principle, numbers of observations of a similar nature are required, hence we need not refrain from reporting a condition because some one else has reported it before. Writers judge of the frequency of occurrence of a given condition by the number of cases found recorded in literature. They say a condition is rare, if they find it infrequently reported. It may be that in the aggregate the condition is frequent, but observations to this effect have not been put on record. Conditions that are recorded as rare should by all means be reported. Even if a case seems quite trivial and of but little importance to the observer, he should not on this account refrain from putting it on record. A report which may be a matter of but little concern to the one who writes it may be the tenderest and sweetest morsel to the author who is earnestly endeavoring to fill up his outline on some branch of veterinary medicine. It is the little things that give magnificence to science when viewed as a finished product.

Briefly the benefits which may be obtained by reporting cases to our journals of veterinary medicine, and to veterinary medical societies for publication in the report of their proceedings are :

First.—If an intelligent report of a case is made, it serves to introduce the writer in a favorable manner to those who read the article, and to bring him prominently before the profession. He will in this way acquire that standing among professional men that all good veterinarians deserve.

Second.—It renders the veterinarian more alert to detect new forms of disease.

Third.—Other practitioners will find careful reports of incalculable value to them in their treatment of cases which they meet in their practice. It gives them a “lamp of experience” to guide them. They are thus relieved of the necessity of resorting to makeshift methods, the efficiency of which they can only conjecture. It is well to have the power of original device in case of need, but no one should be compelled to depend upon his own untried inventions because he is deprived of the experience of his predecessors and contemporaries.

Fourth.—It affords writers of articles on technical medical subjects data which they may use for the purpose of substantiating some principle they have evolved, or gives them facts from which they may make original inductions.

Fifth.—It is only through the agency of reports of cases that we will be able to build up a national veterinary medical literature. These reports will furnish to those who write our books the larger part of the material which is necessary to bookmaking. Writers, in order to produce a valuable scientific work, must have a large collection of reliable records which have been contributed by the rank and file of the profession for a long period of years. A celebrated surgeon of Philadelphia recently writes on this point: “The report of cases bears the same relation to a national medical literature as does the farmer to the body politic, viz.: it is the foundation—the backbone. There is scarcely a single important contribution to medical science which is not based on the report of cases. The student collects these cases from general literature and draws from this collection deductions which are useful to the whole profession. Case reports may be considered the springs, which if sufficiently numerous make the mighty river of progress of medical science.”

The entire fabric of science is but the recorded experience of individuals. In the words of another: “Science is ‘knowledge gained by systematic observation, experiment, and reasoning coördinated, arranged, and systematized.’ ”

By this I do not mean that anyone who has this material can produce a technical and worthy treatise. The writer of a book should be a man of high attainment and wide experience, so that he may possess wise judgment, close discrimination, and high powers of reasoning. He must be on a plane far above the mere compiler. Yet no one can write a treatise on veterinary medicine worth reading without making frequent and constant use of the experience and reasonings of others.

It is in a large measure the character of the writer that makes the difference between the compiled and the elaborated treatise. The compiler and the elaborator both use the experience of others, but the former jumbles that experience together in a careless manner and makes use of but little original thought or experience, while the latter uses the experience of others with discretion, and disposes it according to his own wise judgment and broad education. It is for the use of men of the latter class that the current magazines and periodicals and reports of societies should be teeming with reports of experiences and investigations of the practitioner and experimenter.

It is a fact much to be deplored that there is so little of scientific veterinary literature by American authors. Practitioners here are compelled to rely in a large measure upon foreign publications or their translations. The Germans and French have excellent treatises on the various branches of veterinary medicine, well suited for their own veterinarians, but these works are in many instances not adapted to the needs of the American practitioner. America has such immense live stock interests that she should be represented by a bountiful literature covering every phase of the subject and kept revised by the addition of the latest developments of science. The demand for such a literature is imperative. Our sister profession has accomplished this task, and if we wish to obtain such recognition as we ought to have from the fraternity of human medicine, we must produce an adequate literature.

European writers have had more than a hundred years of active scientific veterinary experience and research from which

to draw in accomplishing their excellent literary labors. In America we have had scarcely more than four decades, during which entirely too little writing has been done by our practitioners. I do not believe that it is possible at the present time for us here in America to produce an adequate set of treatises on veterinary subjects from material which is in sufficiently large measure our own, for such material is not yet in existence. What we need is a score of years of activity with the pen on the part of our practitioners, recording, whenever occasion offers, their individual research and experience. At the end of that time I believe we can produce a literature which will be equal to that of the European nations, and compare favorably with that of human medicine.

An eminent physician recently writes: "There can be no broad, useful medical literature without careful reports and analyses of large numbers of cases. Such literature can only be built up by reporting accurate observations upon all phases of disease under all the conditions in which it is met."

That excellent quotation used in the AMERICAN VETERINARY REVIEW, and which Dr. Bell writes me is to be credited to the *Veterinary Record*, says: "Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession and assists by his facts in building up the solid edifice of pathological science."

Let us unite in a persevering effort to build up a national veterinary medical literature.

SHOULDER LAMENESS IN THE HORSE.

BY ROSCOE R. BELL, D. V. S., BROOKLYN, N. Y.

A Paper read before the New York State Veterinary Medical Society, Sept. 8, 1899.

If ever veterinary surgery should be forced to follow in the footsteps of human medicine and assume specialties in its practice, the chief branch would be diseases and accidents of the locomotory apparatus, for surely the most frequent demands

upon the veterinarian's services, in the cities, at least, are for the treatment of lameness. Indeed, some veterinarians, while prescribing for all classes of cases, proclaim that they are specialists on lameness, which is to say that they have given the subject particular study, and consequently consider themselves adepts in the diagnosis and treatment of disorders of the apparatus of locomotion. All city veterinarians, to be abreast of their profession, must make of lameness a special study, and he whose tastes and talents lie in that practical direction will find himself well repaid for all the time and energy he may bestow upon it. I have no apology to make to this society, then, in bringing before it a subject belonging to this class which has enlisted my very earnest consideration for some seven years, and which I have postponed writing upon until I could verify by larger experience a conclusion arrived at in 1892, viz.: That a very prolific cause of lameness in the anterior extremities is strain of the coraco-radialis muscle, especially at the fulcrum formed by the superior extremity of the humerus, where that muscle so nicely applies itself to the bicipital groove. I first reached this conclusion by finding patient after patient suffering from an identical lameness, with a history in almost every instance as follows: The horse suddenly or gradually became lame while driving, appeared to get better after going a short distance, and possibly grew worse again. The next day he was taken to the blacksmith's, and his foot examined, but nothing was found. Rested in the stable for a day or two he appeared as well as ever, and when driven the owner was sure the trouble was all over with, but while congratulating himself upon his lucky escape, he observes that the horse is again going lame in the same leg, and begins to suspect that it is due to interfering, which, however, he is unable to find evidence of. The horse is again stabled, and probably this time the shoes are removed and his feet soaked in cold water or poulticed, and when the lameness has again entirely or partly disappeared he is reshod with great care and perhaps bar-shoes applied, with the subsequent history that he is lame almost as soon as trotting has begun,

and it continues with increasing severity, characterized by exacerbations and decline of the limping. Thoroughly dumb-founded as to what can be the matter, the horse is submitted to the veterinarian, and the above history recited. The veterinarian finds that in the stable the horse stands with all legs in their normal position, and in reply to his query is told that he has never been detected pointing. At the walk no lameness can be discerned, but as soon as trotted to the halter, he begins to nod greatly, and on careful observation of the character of his gait, the affected shoulder will be noticed to hesitate in its forward movement; it is not carried ahead with the freedom of extension that its fellow is. The discrepancy between lameness in motion and the manifestation of it while at rest or in walking is very great. Returning to the stable for further examination it is observed that the horse places the lame leg squarely under him and throws upon it its proportionate amount of weight.

The conclusion is then reached that the lesion is not concerned in weight-bearing, but must be associated with the movement of the extremity, and, from his gait, with extension. Further confirmation of this is found in the fact that the foot is normal on manipulation and examination, and all evidence of disease of the lower portion of the extremity is lacking. Now, a careful examination of the shoulder is made, and, remembering the difficulty experienced by the patient in carrying the ray forward, the muscles engaged in that service are manually gone over. It will be extremely rare that swelling or heat will be observed, and ocularly nothing will be found amiss. On the affected side pressure upon the mastoido-humeralis as it passes over the point of the shoulder causes pain, evidenced by the quick impulsive cringe when pressed violently by the thumb. A similar proceeding on the opposite shoulder is met with little or no sign of pain. Driving the thumb more deeply, moving the mastoido-humeralis out of its position, and pressing the coraco-radialis into the bicipital groove, all evidences of the pain first observed are intensified, and those observing the aspect of the patient usually say in one voice: "Doctor, you

have struck the spot." To make your diagnosis more certain, a twitch is placed upon the animal's nose to fasten his attention, with the result that he will only flinch when pain is experienced, and not from irritability. Manipulation of each bicipital groove under these conditions gives the result that upon the affected side a quick spasmodic movement is made when pressure is applied, while no sign of inconvenience is given on the opposite side.

While every case will not give the identical symptoms above detailed, each one will resemble it to the extent of recognition.

They came upon me with such frequency that I became alarmed for the accuracy of my diagnoses, and upon each visit to such a patient, I would endeavor to test it by a closer scrutiny for new developments; but always with a clearer conviction of its correctness. I would consult other veterinarians with the interrogation, "Do you meet many cases of lesion in the shoulder?" The answer "No" is mostly given. Through the years lying between my first recognition of it and the present time it has been a constant form of lameness in my practice—as frequently met as any other one locomotory lesion, it being not an infrequent circumstance to have six or eight under treatment at one time.

In no instance has the diagnosis been proven to be erroneous. I have known many veterinarians to disagree with me, claiming that the lesion was at some other part of the leg, but it was an opinion without demonstration, ocularly or otherwise. I am thoroughly convinced that I and others have blistered, and fired and blistered, many horses for what we were pleased to term periostitis, or other obscure bony lesion, usually in the region of the pastern or foot, when we could not have gotten further from the real seat of the trouble unless we had gone beneath the sole. The period of rest induced by the blistering having been sufficient to dissipate the trouble in the bicipital groove, we gathered about us our cloak of conviction that we had justified our diagnosis.

What is the cause of this frequent lameness? Answer: It

may be due either to strain or rheumatic cause. You ask, how could it be strained, and I answer that it usually occurs in progression; a foothold is taken which suddenly gives way, the limb being violently thrust backwards, the force of the impression being thrown upon the fulcrum of the leverage. Or in rising from the recumbent position, the same may occur.

Treatment.—If of recent origin, hot fomentations and sweating with hot blankets covered by impervious material, as rubber or oil-silk, in conjunction with anodyne liniments. In case this form of treatment should prove ineffectual within a week, or if the patient has been lame for one week or more prior to submission to the veterinarian, resort should at once be had to strong counter-irritation. With me two setons are at once introduced into the shoulder, one on either side of the course of the superior third of the muscle; these setons are usually anointed with a simple antiseptic ointment, or in case of chronic lesion or phlegmatic subject they are medicated with irritants. The counter-irritant response to setons is far superior to that from cantharides ointment or from the actual cautery in this region, and not nearly so apt to blemish, and furthermore the action may be kept up indefinitely by allowing them to remain *in situ*. When the setons have been removed and the tracts healed, the patient should be turned to pasture if in season; if during the winter months, exercise in a large paddock or barn-yard, or led to the halter. This period of passive exercise should be prolonged for about two months, or for a considerable time after all evidences of lameness have passed away. I lay particular stress upon secondary exercise for the reason that it is my conviction that recovery occurring under such conditions is very apt to be permanent, while if accomplished in an attitude of perfect immobility the lameness is prone to return when the horse is put to work.

The prognosis is usually good, but the period of extended rest from active exercise after subsidence of the lameness must be insisted upon at the time the forecast is made. In a few instances structural changes occur and lameness is the permanent result.

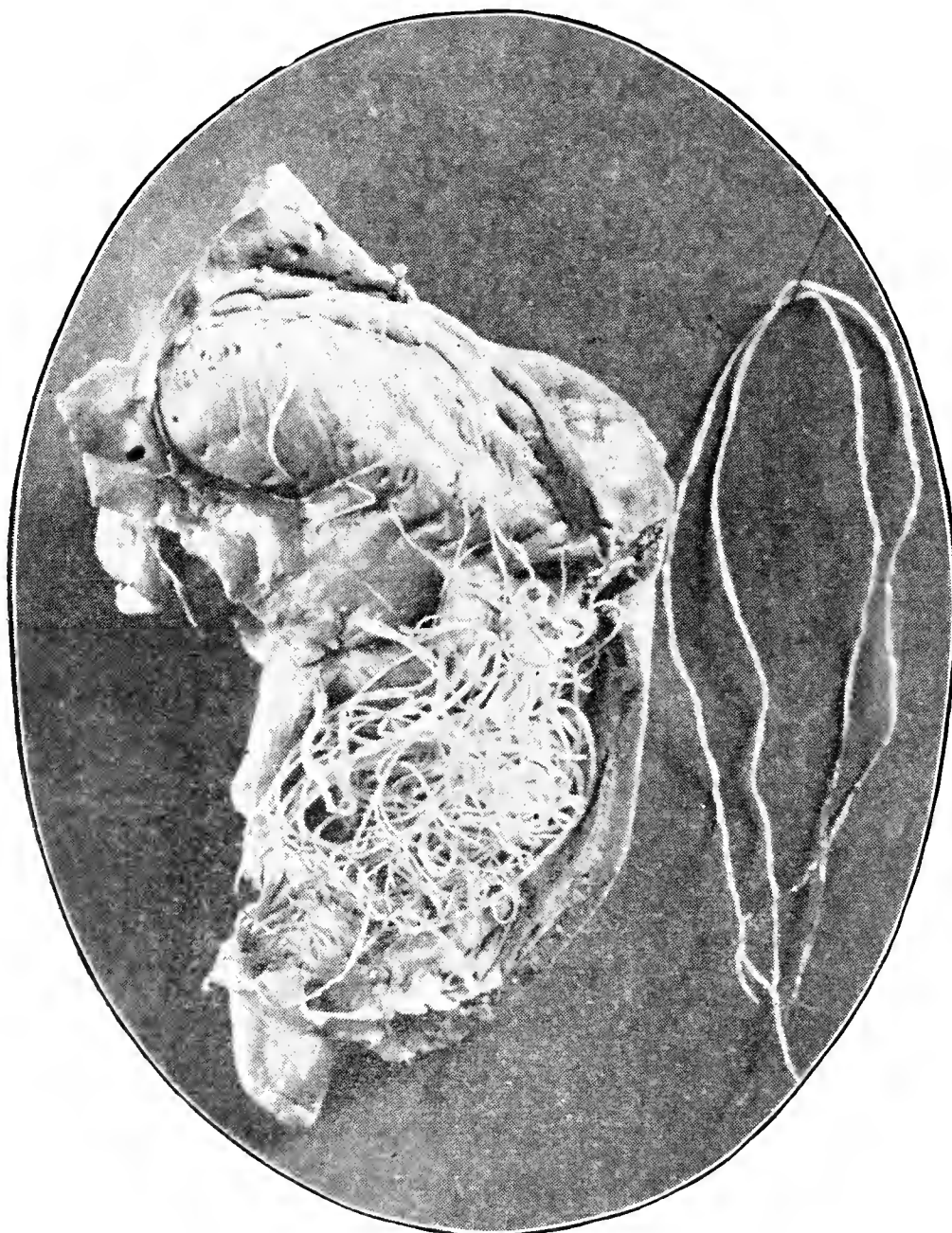
REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

WORMS IN A DOG'S HEART.

By W. E. FRENCH, V. S., Daytona, Fla.

On August 16 a gentleman came to my office, bringing a setter bitch, about three years old, and weighing about 30



pounds, which he said was not doing well; would not eat, seemed stiff on her legs, and was sore upon lifting her into the carriage to bring her in to me.

Upon looking her over I found a spot sore to the touch at a point about the posterior extremity of the sternum, but not

showing in the least externally. Symptoms, pulse 60, not very regular, very little fever, nose dry, all four legs stiff and sore upon moving them quickly.

As there had been hard rains for a few days I thought she might have taken cold and that it might be rheumatism; so advised giving her salicylate of sodium and borate of sodium three times a day, and anything that she would eat. On the 18th called again and he wished me to come and see the bitch, as she was no better and would not eat. I went at once and found her stiffer than ever, temperature $102.3-5^{\circ}$, pulse 80, very irregular. Diarrhœa, with expulsion of masses of mucus, which was occasionally tinged with blood, and I made the remark that I thought we had missed it in not giving the worm medicine which we had talked of previously, and advised giving at once.

Upon giving a capsule she immediately threw it up, and I told him to wait a couple of hours and try again.

On the 19th I called again and found her much the same as before, not eating at all, but drinking water some. She was very stiff yet, would move only as she was forced. Temperature 103° , pulse 80, very irregular, movement of bowels same.

On the 21st called and found dog dead. Was told that the right front leg had swollen up, broke and run considerable matter. It looked very much like blood poisoning. I held a post-mortem, as I wished to see the condition of the viscera, etc. I found the bowels much inflamed, some black spots, and was in that condition throughout their whole length; liver enlarged, kidneys badly inflamed, spleen somewhat enlarged. Upon opening the thoracic cavity I noticed the spotted condition of the right lung. On severing the pulmonary artery and bronchial tubes of the posterior lobe of the right lung, I was somewhat surprised to find a mass of white worms reaching from the heart down into the pulmonary arteries of the right lung, some twenty in number, I should say, about the size of a knitting needle and ten inches long, of an ivory white color. On dissecting the heart I found in the left auricle and ventricle a mass or ball of the same worms as large as a goose egg, completely filling the cavity. The photograph shows them in the heart just as I found them, about forty in number.

What are they? Where did they come from? and what are they doing there? What are we to do in such a case?

This same bitch had a litter of pups some three months ago; they all died, suffering from a diarrhœa with expulsion

of masses of mucus which was occasionally tinged with blood, and external symptoms of general wasting, and I held a post-mortem on one of them and found the intestines nearly full of a very small worm not larger than a fine cambric needle and from one-fourth to one-half of an inch long, but none in the heart. Now, this looks to me as though it might be hereditary, and the eggs of this worm entered the pups through the foetal circulation. Will some one give us some light on this subject?

[NOTE.—The worms from the adult dog were undoubtedly the variety of thread worms called *filaria immitis*, or otherwise *filaria pappilosa hæmatica*, which have been found by many practitioners in large quantities, and often in animals that have apparently enjoyed good health while the host of a great number of them. We know of no treatment offering any prospects of success in eliminating them. If their mode of propagation were known prophylactic measures could be employed. It is doubtful if infection can take place through the foetal circulation. The intestinal worms of the young animals were probably not *filaria immitis*.—R. R. B.]

EXPERIMENTS WITH TETANUS ANTITOXIN.*

By F. E. ANDERSON, V. S., Findlay, Ohio.

Case No. 1. Tetanus in Three-Year-Old Roadster Gelding.

Produced by crossfiring and cutting quarters badly. The first symptoms noticed by owner on morning previous. Gave 25 c.c. Gibier's tetanus antitoxin hypodermically. 8 A. M.—Pulse 60, temperature 101° F. Left one ounce solid extract of belladonna to be applied to teeth, and two pounds hyposulphite of soda, to be given in two-tablespoonful doses in drinking water three times a day, along with one teaspoonful of potassium bromide; soaked front feet in warm water containing creoline, one part to 500, until thoroughly cleansed; then rubbed the wounds with iodine crystals, 1 part; potassium iodide, 2 parts; distilled water, 100, and covered same with absorbent cotton saturated with the iodine solution. 5 P. M., gave 25 c.c. antitoxin; pulse 58. Feb. 17.—8 A. M., gave 25 c.c. antitoxin; pulse 48, temperature 100; repeated treatment of foot as above; colt eating some mash and clover hay. Feb. 21.—8 A. M., gave 25 c.c. antitoxin; pulse 48, temperature 99; eating well. Feb. 22.—8 A. M., gave 25 c.c. antitoxin; pulse and temperature same. Feb. 23.—8 A. M., gave 25 c.c. antitoxin; pulse 44, tem-

* Presented at Semi-Annual Meeting of Ohio State V. M. Association.

perature 99; eyes looked natural and hardly any nervousness perceptible. Feb. 26.—8 A. M., symptoms slightly worse; gave 25 c.c. antitoxin; pulse 48, temperature 100. Feb. 27.—8 A. M., symptoms greatly improved from day before; pulse 40, temperature 99; gave 25 c.c. antitoxin; no symptom of retraction of eyeballs upon excitement, and colt eating and drinking as natural as any horse. Instructed owner to report if symptoms returned, and in one week he took horse out of stall to exercise and showed no symptoms whatever and never did afterward.

Case No. 2. Gray Draft Mare, Nine Years Old, Heavy in Foal.

April 5.—5 P. M., three miles in country; found large gray mare standing in narrow stall, so stiff she could not move over without causing great excitement; eyes retracted, froth around lips and grinding teeth; could not open front teeth half an inch; pulse 72. Owner said he had removed nail from left hind foot four weeks before, and the foot had broken at the heel; then he thought she would be all right, but four days before he called me he noticed she did not eat very well, and her eyes looked bad, and she had been getting worse, until she could not eat anything. He thought it time to call somebody and find out what the trouble was. I gave her 25 c.c. antitoxin; left hyposulphite of soda, potassium iodide, solid extract of belladonna and solution iodine to use in foot, which had to be injected in at opening in heel with a syringe, as we could not raise her foot off the floor. April 6.—9 A. M., pulse 50, no grinding of teeth nor froth around lips; owner said she drank a little water; gave 25 c.c. antitoxin, waited two hours. 11 A. M., pulse was 44; gave another injection of 25 c.c. antitoxin. Apr. 7.—10 A. M., condition about same as day before, except pulse 48; gave 25 c.c. antitoxin. Apr. 9.—10 A. M., condition unchanged, except a little more use of maseter muscles and could eat a little mash. Apr. 10.—11 A. M., pulse 48, temperature 101, otherwise better; gave 25 c.c. antitoxin. Apr. 12.—10 A. M., pulse 52, temperature 100.5°, a little more excitable, but eating better. Apr. 13.—12 M., pulse 48, temperature 100; gave 20 c.c. antitoxin; eating well, eyes normal, no nervousness, could move well in stall; thought mare all right, and told owner I would not give any more antitoxin, but had him continue hyposulphite of soda and half teaspoonful doses of pot. nit. once a day, as mare was swelled considerably in abdomen and hind legs. Apr. 20.—10 A. M., owner called and said the mare showed slight symptoms at times of the disease, and I went out to see her; found her much improved in appearance; pulse 54,

temperature normal, and slight retraction of eyes upon excitement, but no contraction of any of the muscles of body or tail; eating well and no stiffness in moving; gave 25 c.c., and owner reported two days later, stating the mare appeared perfectly well, but had some swelling on abdomen, which disappeared ten days later after she gave birth to a live foal, which is doing fine.

CORRESPONDENCE.

A VETERINARIAN'S VISIT TO THE PHILIPPINES.

HONOLULU, H. I., Aug. 24, 1899.

Editors American Veterinary Review:

DEAR SIRs:—Ever since my return from Manila, I have intended to write you of my trip, as promised, on the *Conemaugh*, U. S. mule transport, but have put it off from time to time.

The life on a mule transport is full of charms (?), especially when one has to work at a disadvantage—as we were subjected to on the *Conemaugh* on her trip from San Francisco, Cal., to Manila, *via* Honolulu, at which place I joined her as assistant to Dr. J. A. Welsh. Her trip from San Francisco to this port was full of hardships, with green men and seasickness. The animals were pretty well knocked about, suffering a loss, I think, of eight mules. The weather was bad, cold and foggy, after leaving San Francisco. After her arrival here the mules were landed for a rest, and the quartermaster here came to the conclusion that Dr. Welsh needed an assistant with the 285 mules that were to be taken on to Manila. The facilities on board were of the poorest kind, and there was more than one veterinarian could handle and do justice to himself, and in anticipation of any unlooked for sickness I was asked to go.

The vessel was very poorly fitted up for the transportation of live stock; the animals were in stalls, side by side, and it was simply impossible to remove one that was placed aboard among the first unless you moved nearly every animal on the vessel. It was impossible to go behind the animals, as their sterns were right up against the side of the vessel, and to give an injection at one time of the voyage we had to get on the outside of the vessel to accomplish it.

A few electric fans were placed through the lower hold, but were about as much use as a common Japanese fan used by a child; they were always out of order, and the only thing they

did accomplish was work for the electricians, and to stir up the bad air, which was very plentiful, and seemed to have a very exhaustive effect on the animals. We had temperatures run up as high as 107° F., 104° F. was normal. Windsails were let down into the lower hold, and when the wind was in the right direction cooled things off a bit. We had very little wind and a very smooth passage of twenty-one days. Our loss was one mule, eighteen days out from Honolulu; it was simply exhaustion; his temperature ran from 106° to 110° , and under these conditions we had to let him go over the side. Did not suffer any, but just went out.

Well, we landed 252 animals at Manila; 32 were left on board, and were taken to Iloilo for the use of the army at that point. The animals seemed to be in such good condition when landed that quite a number were at once placed to work. It was a little hard on them after a 21 days' trip with never a chance to lie down, but the urgent need of the animals by the army led to this.

I was very glad to see Dr. E. H. Brown, veterinarian, Quartermaster's Department, who came off to see us soon after our arrival, and had the pleasure of staying with him at the Quartermaster's Corral in Manila for fifteen days. After getting ashore and reporting to the Chief Quartermaster (Col. Pope), Dr. Welsh and self were asked to remain in Manila, which we both declined, and so during our temporary stay there I was assigned to the Board of Health for duty. Following is a copy of the order:

HEADQUARTERS PROVOST MARSHAL GENERAL,
MANILA, P. I., April 22, 1899.

General Orders, No. 12.

It having been fully established that we have a contagious disease amongst the cattle of the city, commonly known as the "hoof-and-mouth disease," a veterinary surgeon is assigned to duty with the Board of Health, and will perform his duties under the general direction of that body. He is fully empowered under the supervision of the Board of Health to order such disposition of diseased horses and cattle as the necessities of the individual cases may demand for the general good. Veterinary Surgeon William T. Monsarrat is appointed, temporarily, to the position of Veterinary Surgeon of the City of Manila.

By order of BRIGADIER GENERAL HUGHES,
Provost Marshal General:

CHAS. A. CLARK,

Official: 1st Lieut., 13th Minn. Vol. Infantry,
(Signed) CHAS. A. CLARK, Aid. Aid Actg. Adj't. Gen'l.

Had a carriage placed at my orders, and made an inspection

of some of the cattle. Found a great many with rinderpest and foot-and-mouth disease. Nothing much could be done by me during my short stay; had a good many destroyed, but the disease had got such a foothold it would take longer time than I had to get properly to work. When the disease first made its appearance Dr. Brown notified the authorities of the danger, but very little heed was taken. It was brought to the country from China ports. The Australian dairy suffered the greatest loss, some 100 cows dying inside of a fortnight. As my stay was limited, and to have some one carry on the work, Dr. C. N. Ferrier (McKillip, '97), ex-State veterinarian of North Dakota, who is with the Hospital Corps, was ordered from the lines to report for duty at the Provost Marshal General's office in Manila. I was very pleased to meet Dr. Ferrier just before I left Manila, and saw him go to work fighting the disease. His experience as a State veterinarian will stand him in good stead, and no doubt we will hear of his good work at Manila.

Dr. Welsh and I returned home by way of China and Japan. Had a most enjoyable trip. We were in quarantine at Nagasaki, Japan, for seven days, and then I got eleven days more anchored outside of the harbor here. Dr. W. proceeded on to San Francisco and was quarantined there for fourteen days. Bubonic plague was the cause of our detention.

Taking the trip all in all I enjoyed it. I was away from Honolulu three months. Leaving here on March 28th and landing on June 27th in Honolulu again. I gained in flesh to the amount of twenty pounds, and feel much better than when I left. Seeing so much on my travels, I had plenty to talk of, but have about exhausted myself now.

Yours sincerely,

W. T. MONSARRAT.

DOES NOT WISH TO SAIL UNDER FALSE COLORS.

FREMONT, NEB., September 7, 1899.

Editors American Veterinary Review:

DEAR SIRs:—To my report of the Schmidt treatment for parturient paresis, published in this month's REVIEW, I see you have added M. R. C. V. S. to my signature. This is not correct, and I have no right to that title. I am registered at the Royal College as a veterinary practitioner and do not wish it to be supposed I am assuming the title of M. R. C. V. S., as it has never been used by me.

Yours truly,

H. CHAMBERS.

SOCIETY MEETINGS.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

The thirty-sixth annual meeting of this association convened in the Hosack Room at the Academy of Medicine, New York City, Sept. 5, at 10.30 A. M., with the President, Dr. A. W. Clement, of Maryland, in the chair, Secretary Stewart recording. At the opening hour the large room was well filled with members and visitors, there being about twenty-five ladies present. Prof. James L. Robertson, President of the Veterinary Medical Association of New York County, upon behalf of that association, welcomed the visitors to Gotham in a manner which made them all feel that they were truly among those who appreciated their presence, to which Dr. D. E. Salmon responded in a most happy vein on behalf of the National Association.

THE PRESIDENT'S ADDRESS.

President Clement then asked Dr. Salmon to take the chair, while he delivered his annual address as follows :

In writing this, my inaugural address, I am ever mindful of the learning of my predecessors and their wide experience, which always gave them an amount of material ready at their hand for the wise and entertaining discussion of questions important to our profession and beneficial to all those who may have listened to or read their addresses in our reports. I could not if I would take as my subject for to-day some one question of scientific import and deal with it as some of my predecessors would have done from this platform. But hampered as I am by the very prestige which has made this office so honorable, I shall not begin by shirking my duties, and in my humble way as an every-day practitioner, dependent upon the revenue of his practice for his daily bread, but still deeply interested in our profession, I shall try to bring before you a brief review of the past of veterinary medicine and to look a little way into the future and see what promises it has in store for us.

This association, founded, as you know, by men whose names must be revered by all of us, established in the very first years of its existence certain rules and regulations for the guidance of its members, which were well thought out, and which have worked admirably for the benefit of all. As time went on certain changes in the Constitution and By-Laws were made to suit the altered conditions as they arose, but in the main our code of ethics is unchanged and the principles established by the founders still remain to-day, as they have ever been, a guide and a rule of conduct for the members, the legacy of wise and helpful parents.

Beginning as it did in an humble way with semi-annual meetings of one day devoted in part to instruction and in part to pleasant social intercourse, its gatherings, confined to a few cities in the East, it has since developed so much and become so far-reaching as to require three whole days for any adequate discussion of matters strictly within its province. To meet the convenience of its members its meetings are now held in the

East and in the West, in the North and in the South. Last year, as you know, a further important change in the Constitution was made giving to this body a greater scope, enlarging its facilities for doing good work not only for its members but for the community in general. I have, therefore, the honor to preside over the first meeting of the American Veterinary Medical Association, embracing in its field the United States, Canada and Mexico, nay, even more, the whole Pan-American Continent, and as a result of the stirring events of the past year stretching forth its arms to the far East. But as the scope of the society has increased the responsibilities laid upon the members have also become greater, and not upon the members alone but upon the President. I only wish that my capabilities had multiplied to keep pace with my responsibilities.

I suppose that to a certain portion of the public this might be still looked upon as a convention of "horse doctors." Perhaps the term may be used in a scoffing sense, although as a matter of fact when I look at some of the two-legged animals that the practitioner of human medicine has to deal with I must say that I prefer by far to treat that noble animal, the horse, or the trusty friend of man, the dog. But, seriously, all branches of medicine are closely united. For the thorough understanding of human anatomy, comparative anatomy is indispensable; for a thorough knowledge of diseases in man the study of morbid conditions in animals is necessary. Thus, the veterinarian may claim a close brotherhood with the practitioner in human medicine and both professions by working harmoniously can do much to advance the public health. It will not be, therefore, out of place if I speak a few words about medicine in general, and here I would remark that among the names of those doing scientific work in this country for the advancement of medical science, we have not far to look for those members of our own branch. While we have to thank the practitioner of human medicine for certain new methods of treatment, which we can adapt to our use as circumstances may require, at the same time the field for original work is open for the student of veterinary medicine, and he has it in his power to do much to further our knowledge of disease, not only in the lower animals but also in man. Thus, the practitioner in human medicine can also learn from us. In the last few decades great progress has been made in every branch of medicine and even greater results may be hoped for in the future. When we look back upon the status of medicine 100 years ago and when we take into consideration the facilities at hand at present and our increased knowledge of the origin of disease, the means of prevention and the methods of cure of to-day, one may be pardoned for looking with some complacency upon the extent of our achievements. We now have a definite knowledge of the cause of not a few of the infectious diseases and means more or less perfected at hand to combat them. In the progress of surgery we have not been left behind. By the use of anæsthetics both general and local we can operate upon animals without pain to the subject and with consequent infinitely better chances of success.

Again, who thinks at present of deep firing and blistering when the benefits of brush firing by the thermo-cautery have once been found out. Too many of us are still addicted to the use of liniments to cure some sprain when the crinoline bandage will give us a much better result in a much shorter time. To mention only one or two other improvements.

I was greatly impressed by the demonstration at our last meeting of paring away the soles and heels for chronic lameness in the foot and have since obtained most excellent results from the operation. Take again the operation of arytenoideraphy as performed by Dr. Merrillat, of the McKillip College in Chicago, a much simpler operation than the excision of the cartilage and one which according to his testimony has proven more successful. The operation of castration in the female per vagina, as demonstrated by Dr. Williams at our last meeting, and the anticipated discussion of the iodide of potash treatment for parturient apoplexy of cattle at this meeting, are only a few of the results of work on progressive lines of treatment by veterinarians.

Passing from what has been done in veterinary medicine to what may be done, we enter the realms of possibilities. Suffice it to say, however, that in all probability in the not-far-distant future we may be so far able to control and to cure disease as to render the pole-axe unnecessary except from choice. Take, for example, the work that has been done and is being done at present in the antitoxin methods of treatment! Thanks to the discoveries of bacteriologists, who must of necessity be students of diseases of the lower animals, tetanus can now be prevented and tuberculosis can be diagnosed beyond a possibility of a doubt by agents derived from the poison that causes the disease. Is it too much to hope that tuberculosis may be cured, that rabies and tetanus may be arrested and their ravages be stopped in much the same way as has been done for diphtheria?

For my part I am convinced that in many respects this profession of ours is of more interest and perhaps of as much value as that of human medicine. The interest in one's profession must, however, with few exceptions, no matter what may be said to the contrary, depend to a great extent upon one's ability to obtain from it enough at least to keep him from want and to provide for such expenses as his condition in life may make necessary.

Taking the sum total of the practitioners in veterinary medicine as against the same in human medicine and dividing the total amounts earned in each by the total numbers of practitioners, I believe that the balance is in favor of the veterinarian. And, granted that it is impossible under present conditions, or perhaps under conditions which always have and always will prevail, for the exceptional veterinarian to compete with the exceptional practitioner of human medicine in point of revenue it should suffice for us to know that on an average the scale of remuneration is somewhat in favor of our own branch. From a pecuniary standpoint, then, I do not think that anyone whose education is sufficient and whose tastes are such as to lead him into this work need be deterred from entering upon it. He must remember, however, that while the possibilities are not so great, the exactions are sometimes greater. A physician, when called to see a patient, no matter how worthless he is, is bound to do his utmost to save his life. With us the value of the patient to the owner or to the community will often decide how much time and trouble must be spent upon him. When a veterinarian visits a patient, he must in a majority of instances, discard the history of the case and base his opinion as to the diagnosis upon what is before him. Upon his diagnosis he must form his prognosis, which in many cases must be expressed to the owner almost immediately, in

order that he may know as to the chances of success and may weigh the probable cost.

This, of course, is a purely commercial view of a commercial article, modified sometimes to a greater or less extent by the sentimental affection of the owner for the animal. It may be, however, that this is the highest plane upon which to stand; that the value to the community should measure one's exertions in the care of the sick. Again, public opinion has decreed that while the practitioner of human medicine has not the right to take the life of one suffering from an incurable disease, the veterinarian has that right and should not be slow in using it. It is, indeed, a privilege to possess the power to put a speedy end to suffering. But, again, other things being equal, this one fact is more useful than any other in sharpening the wits of the veterinarian and obliging him to give quick service for the money expended. I repeat then that, looking upon the matter as a whole, I believe that the practice of veterinary medicine is more interesting and quite as profitable as that of practising human medicine.

Much has been said of late as to the prospective horseless age. But the time when all pleasure giving and all work will be taken away from the horse and his place supplanted by machinery has not yet come. Now, gentlemen, this cry has been prevalent many times. When electric lighting came it was said that gas would no longer be used. When the steam railways started, when the electric cars came, when the bicycle was put into use, and now as the automobile is making its appearance we are told that our trade is gone. As a matter of fact, notwithstanding all these innovations, the number of horses that are in any way worth the expenditure of money upon is generally upon the increase, or if at times somewhat curtailed, the diminution is due to temporary commercial depressions with which these innovations have had nothing to do. Let no man otherwise well fitted be prevented from entering this profession on account of the influence of some one interested in the paper stock of some miraculously invented machine.

As to the progress made by the committees of this association during the past year, a more important one is that dealing with Army legislation. It has been a long time since our first efforts in this direction were started, but it was only during the last session of Congress that any definite progress has been made. At this session, under the able influence of the Chairman, Dr. Salmon, much was done. In a letter from him under date of August 17, 1899, he says: "The committee on Army legislation began its work by interviews with the chairmen of the respective committees of the House and Senate on Military Affairs and these committees afterward reported bills containing substantially the legislation that our association has so long desired, that is, it was provided that there should be two veterinarians with rank of second lieutenant with each cavalry regiment.

"Unfortunately, at the last moment, the bills agreed upon by the two committees were laid aside and a temporary substitute bill adopted. This bill was less satisfactory, as it provided for only one veterinarian with the pay and allowances of a second lieutenant of cavalry for each regiment and another at \$75.00 per month and the allowances of a sergeant major. This was disappointing; but the bill provided that the veterinarian appointed to the first grade shall not be so appointed until

he shall have passed an examination to be prescribed by the Secretary of War, as to his physical, moral and professional qualifications. The recognition of the necessity of an examination before appointment is a distinct gain and will be of much value to the profession. And the further provision that the veterinarians now in the service who do not pass such competitive examination shall be eligible to the positions of the second class, under such rules as are now prescribed by the regulations, is only a just recognition of the men who have patriotically and loyally filled these positions in the past and have endured many hardships for the good of the service. The Chairman of your Committee was received by the sub-committee on military affairs of the Senate and allowed to make a statement when this substitute bill was under consideration. It is hoped that when the permanent bill is passed the veterinarians will be given the full rank of second lieutenant and that possibly a veterinary department may be created with a veterinarian at its head who shall have rank in proportion to the importance of the position."

Thus you will see by this letter that while exactly what was wanted has not been accomplished, nevertheless we have at least the temporary bill made in the haste of the last hours of the session and which seems to have been the best that could have been expected under the circumstances. Still it leaves much to be desired and it is to be hoped that the deficiency will be supplied during the next session of Congress, so that we may have what we deserve and what I believe the country claims, viz., a veterinary department presided over by some one of sufficient rank and providing for the extension of the service to the light artillery and to the Quartermaster's Department.

Too much praise cannot be accorded to the Secretary of Agriculture for the interest he has taken in this matter and for the wholesome influence exerted by him upon other members of the Cabinet, especially the Secretary of War. Without his help it is a question whether much could have been accomplished, and except for the close relationship existing between the Secretary of Agriculture and the Chairman of this Committee it is a question whether his intelligent interest in the matter would have been aroused. I therefore say that this association is greatly indebted to Dr. Salmon for his earnest and self-sacrificing efforts. He has done good work, I believe, not only for the profession, but for the Army and the country at large.

As to interference by the individual States and the Federal government for the control of the infectious diseases in animals, I think that my ideas are sufficiently well known not to need any further remarks upon the subject. I would only insist that to be effective all laws relative to the public health should be devised and controlled by a combined body of the boards of health and the live stock sanitary boards in the different States. These should in all cases work in conjunction with and do their utmost to assist the boards at Washington.

As to the future of this association, I believe that what it has already done is only a beginning of an active crusade against the ravages of disease both in animals and in human beings. If we can by our efforts provide the adults of the community with sound meat and the children with pure milk, we shall certainly be invading the territory of the physician. If the chemists then do their part and see that the community is

provided with pure food-stuffs and pure water it would appear that the occupation of the practitioner of human medicine would be gone. But we have not as yet reached the millenium. Only let us be sure that we are ever trying to do our part and that in our earnest efforts we may ever follow the examples of the pioneers and founders of the Association of American Veterinarians.

The roll-call was dispensed with, and a register kept at the entrance, where members and visitors alike inscribed their names and addresses. From that register the following lists of names are made :

MEMBERS AND VISITORS IN ATTENDANCE.

Members Present.—Drs. Ackerman, Adams, Anderson, Allen, Atchison, Ayer, Baker (W. L.), Barron, Bell (R. R.), Berns, Bland, Brenton, Buckley, Budd, Burden, Burget, Carey, Christmann, Clayton, Clement, Coates, Cotton (C. E.), Cotton (T. B.), Dalrymple, Dixon, Dodge, Dougherty (Wm.), Dunphy, Ellis (R. W.), Faust, Fox, Gill, Goentner, Grange, Greeson, Gribble, Hanson, Harger, Hickman, Higgins, Holden, Hoskins, Howard, Huidekoper, James, Jameson, Johnson, Kelly, Kilborne, Kille, Krowl, Law, Lowe (J. P.), Lowe (W. H.), Lyman (R. P.), McInnes, McLean (C. C.), McLean (L.), McLellan, McNeil, Mackie, Mackey, Marshall, Martenet, Mayo, Meyer, Miller (C.), Miller (W. B. E.), Mohler, Morris, O'Connell, Ogden, Paige, Pearson, Pendry, Penniman, Peters (A.), Peters (A. T.), Pierce (B. D.), Pope, Poucher, Ramacciotti, Ranck, Rayner (J. B.), Rayner (T. B.), Reynolds, Rhoads, Ridge, Robertson (J. L.), Rodgers, Salmon, Scheibler, Schwarzkopf, Shaw, Sheldon, Sheppard, Siegmund, Smith (D. E.), Smith (T. E.), Stewart, Stickney, Tomlinson, Turner (J. P.), Vogt, Wellner, White (D. S.), Williams, Winchester, Wright, Zucker.—(86.)

Members Elect Present.—Drs. Armstrong, Cook, Darby, DeVine, Drake, Etienne, Fredericks, Glennon, Heath, Herr, Huppe, Keller, Kenny, Kern, Kesler, Laddey, Loveberry, Loveland, Martin, Moore, Perkins, Porter, Ryder, Sanford, Shaw, Tewey, Towne, Witte.—(28)

Lady Visitors.—Connecticut : Mrs. Thos. Bland, Miss Ella Bland, Waterbury. District of Columbia : Mrs. C. B. Robinson, Mrs. J. P. Turner, Washington. Iowa : Mrs. G. A. Johnson. Illinois : Mrs. H. Sorby, Mrs. J. M. Wright, Chicago. Indiana : Mrs. C. B. Ainsworth, Greensburg. Kansas : Mrs. S. Stewart, Kansas City. Maryland : Mrs. A. W. Clement, Baltimore. Massachusetts : Mrs. W. H. Hitchings, Mrs. C. R. Simpson, Somerville ; Mrs. W. M. Simpson, Malden. Mich-

igan: Mrs. S. Brenton, Detroit; Mrs. J. C. Whitney, Hillsdale. Nebraska: Mrs. D. C. Ayer, Mrs. H. L. Ramacciotti, Omaha. New Hampshire: Mrs. L. Pope, Jr., Portsmouth. New Jersey: Mrs. I. N. Krowl, Newark; Mrs. Wm. Herbert Lowe, Paterson; Mrs. Grant Scott, Jersey City. New York: Mrs. E. B. Ackerman, Mrs. R. R. Bell, Mrs. George H. Berns, Miss Nellie Berns, Miss M. Ella Barlow, Mrs. F. A. Carpenter, Mrs. W. J. Cox, Mrs. Ida Donaldson, Mrs. T. Delaney, Mrs. R. W. Ellis, Mrs. M. J. Frost, Mrs. H. D. Gill, Mrs. H. D. Hanson, Mrs. W. R. Howe, Miss Sara S. McCurdy, Mrs. R. C. Ramacciotti, Mrs. O. Schwarzkopf, Mrs. L. Steenworth, New York City; Mrs. William H. Kelly, Miss Kelly, Albany; Mrs. D. R. Seltzer, Wells-ville; Mrs. W. H. Salisbury, Clifton Springs; Mrs. J. F. De-Vine, Rhinebeck; Mrs. Chas. Cowie, Ogdensburg; Mrs. J. A. Genung, Ithaca. Ohio: Mrs. H. T. Carpenter, Ada; Mrs. T. B. Hillock, Columbus; Mrs. E. H. Judkins, Platz; Mrs. M. C. McLain, Jeromeville; Mrs. E. H. Shepard, Cleveland. Pennsylvania: Mrs. C. T. Goentner, Bryn Mawr; Mrs. H. Emery, Pittsburg; Mrs. A. W. Wier, Greenville; Mrs. C. C. McLean, Meadville; Mrs. W. Horace Hoskins, Mrs. J. T. McAnulty, Mrs. T. B. Rayner, Mrs. E. M. Ranck, Philadelphia; Mrs. R. L. Hayes, Mrs. J. B. Rayner, West Chester. Tennessee: Mrs. J. W. Scheibler, Memphis.—(62.)

Delegates.—Ontario Veterinary College: D. King Smith, M. D., Toronto. Pennsylvania State Veterinary Society: Dr. J. C. Foelker, Allentown (2.)

Visiting Veterinarians.—Canada: W. J. Morgan, Kingston; M. H. Ten Eyck, Hamilton. Connecticut: C. L. Adams, Danielson; F. G. Atwood, New Haven; J. R. Bacon, Danbury; J. A. Donaldson, Manchester; A. A. Moody, Putnam. Georgia: C. R. Jolley, Atlanta. Indiana: C. B. Ainsworth, Greenburg; J. Beatty, Indianapolis. Iowa: W. R. Fullarton, Dubuque; R. J. Scott, Independence. Maine: F. E. Freeman, Rockland; F. W. Huntington, G. F. Westcott, Portland; A. Joly, Waterville; I. D. Salley, Skowhegan; W. L. West, Belfast. Massachusetts: F. Abele, Jr., Quincy; C. R. Borden, Taunton; W. H. Hitchings, Boston; A. G. Potter, Adams; C. R. Simpson, Somerville; W. N. Simpson, Malden; C. H. Tilton, Ashland; J. A. Viles, Lowell. Michigan: J. C. Whitney, Hillsdale. Nebraska: V. C. Barber, Lincoln. New Jersey: Wm. Gale, Matawan; G. F. Harker, Newton; R. S. Hasbrouck, Passaic; J. D. Hopkins, Newark; F. L. Stevens, Union Hill. New York: H. Amling, Jr., C. S. Atchison, T. Delaney, T. H. Doyle, J. H. Ferster, H.

C. Glover, W. R. Howe, T. J. Herr, J. A. Kenny, R. S. Mackeller, H. K. Miller, W. C. Miller, J. J. Murray, B. Pendry, E. L. Sanders, T. G. Sherwood, J. H. Gaylor, J. Weiss, S. West, G. W. Meyer, New York City; M. T. Brewster, E. Knight, A. G. Tegg, Rochester; T. J. Cooper, H. D. Mayne, Malone; Chas. Cowie, Ogdensburg; E. M. Casey, Oxford; G. C. De Witt, Oak Hill; E. H. Judkins, Platz, F. D. Markham, Port Leyden; T. Meridith, Jamestown; R. Perkins, Hardys; W. H. Salisbury, Clifton; D. R. Seltzer, Wellsville; J. W. Taylor, Henrietta; H. A. Turner, Syracuse; F. O. Wright, White Plains; J. H. Youngs, Belvidere. Ohio: H. T. Carpenter, Ada; F. A. Dillahun, T. B. Hillock, Columbus; J. D. Fair, Berlin; W. C. Fair, Cleveland; R. G. Holland, Wellington; M. C. McLain, Jeromeville. Pennsylvania: E. M. Conard, J. T. McAnulty, W. L. Zuill, Philadelphia; C. W. Boyd, J. S. Lacock, Allegheny; H. Emery, Pittsburg; J. Helmer, Scranton; E. L. Mead, Turkhannock; W. A. Meridith, Corry; B. F. Minick, Columbia; J. R. St. Clair, Indiana; B. H. Underhill, Media; A. W. Weir, Greenville; J. W. Fretz, Perkins. Rhode Island: C. E. Dornheim, Providence. Vermont: C. W. Fisher, Burlington. United States Army: H. B. Corcoran (97.)

Other Visitors.—J. D. Conners, M. D., Boston, Mass.; Prof. S. H. Gage, Prof. V. A. Moore, Ithaca, N. Y.; S. K. Spaulding, M. D., Health Officer, Omaha, Nebr.; C. P. Lovejoy, State Veterinarian, J. P. Lott, Springfield, Ill.; A. Eickhorn, M. Hallanan, and J. W. Fink, New York City; H. Sorby, Chicago, Ill. (19.)

The reading of the minutes of the Omaha meeting was also dispensed with, the published proceedings taking its place.

At this point the ladies withdrew from the hall in charge of the local committee of ladies (Mesdames Gill, Berns, Bell, and Ackerman and Miss Berns), and at 2 o'clock they assembled at the Hotel Manhattan, where carriages were in waiting, in which they were driven through Central Park, up the magnificent Riverside Drive to Grant's Tomb, returning about 5 P. M.

The Secretary then read the report of the Executive Committee, held the previous evening at the Hotel Manhattan, and the various recommendations were acted upon as follows:

The resignation of Dr. R. R. Dinwiddie, Fayette, Ark., was not accepted, and a committee consisting of Drs. Pearson and Peters was appointed to communicate with the doctor and try and induce him to retain his membership, as it was deemed a great loss to the association should he sever his connection with

it. The resignations of Drs. George N. Kinnell, Pittsfield, Mass.; Joseph Ogle, Jr., Greenport, New York; A. Collasowitz, St. Louis, Mo.; L. McLean, New York, and H. D. Fenimore, Knoxville, Tenn., were accepted.

The charge of violation of the code of ethics against Dr. C. J. Sihler, Kansas City, was withdrawn, as the offensive advertising had long since been discontinued.

Those against Dr. Emele Pouppirt, Duff, Colorado, were sustained, and his expulsion from the association followed. The charges against Dr. C. C. Lyford, of Minneapolis, were withdrawn, provided the cause is at once removed.

The proposed amendments to the Constitution—Article 1 of Chapter VI—were discussed at length, and the recommendation to adopt was voted down.

NEW MEMBERS ELECTED.

The following candidates for membership were favorably recommended, and they were unanimously elected:

F. E. Burnham, D. V. S. (C. V. C., '90), West Superior, Wis., voucher, R. H. Harrison.

Geo. W. Butler, V. S. (Ont. V. C., '84), Milwaukee, Wis., voucher, R. H. Harrison.

Thomas S. Childs, V. S. (N. Y., C. V. S., '91), Saratoga Springs, N. Y., voucher, W. H. Kelly.

Charles H. Cook, V. S. (Ont. V. C., '72), Rochester, N. Y., voucher, Wm. Henry Kelly.

James W. Darby, V. S. (Ont. V. C., '90), Fort Plain, N. Y., voucher, Wm. Henry Kelly.

John F. DeVine, D. V. S. (A. V. C., '98), Rhinebeck, N. Y., vouchers, Wm. Henry Kelly, W. J. Coates.

M. W. Drake, D. V. S. (A. V. C., '90), Philadelphia, Pa., vouchers, W. H. Ridge, J. Payne Lowe; laid over.

Albert A. Etienne, D. V. S. (Laval Univ., '90), Ware, Mass., vouchers, J. F. Winchester, B. D. Pierce.

Pierre A. Fish, D. V. M. (N. Y. S. V. C., '99), Ithaca, N. Y., vouchers, James Law, W. L. Williams.

James T. Glennon, V. S. (N. Y. C. V. S., '96), Newark, N. J., vouchers, A. G. Vogt, J. Payne Lowe.

J. N. Gould, M. D. C. (C. V. C., '93), Worthington, Minn., vouchers, M. H. Reynolds, S. Stewart.

Benjamin F. Hoover, V. S. (Ont. V. C., '95), Davis, Ill., voucher, E. M. Nighbert.

Ferd V. Huppe, V. S. (N. Y. C. V. S., '92), Mt. Pocono, Pa., voucher, Wm. Henry Kelly.

A. B. Kelly, D. V. M. (N. Y. S. V. C., '98), Albany, N. Y., voucher, Wm. Henry Kelly.

George C. Kesler, V. S. (Ont. V. C., '92), Holley, N. Y., voucher, Wm Henry Kelly.

John T. Lee, D. V. S. (A. V. C., '89), Tacoma, Wash., voucher, S. B. Nelson.

J. V. Laddey, D. V. S. (A. V. C., '97), Arlington, N. J., voucher, J. Payne Lowe.

G. W. Loveland, M. D. C. (C. V. C., '94), Torrington, Conn., voucher, Richard P. Lyman.

John H. McNeall, V. M. D. (U. P., '98), Buffalo, N. Y., vouchers, Leonard Pearson, J. C. Marshall.

John J. Moynahan, D. V. S. (A. V. C., '95), Holyoke, Mass., vouchers, B. D. Pierce, H. E. Holden.

James D. Nighbert, V. S. (Ont. V. C., '89), Pittsfield, Ill., voucher, E. M. Nighbert.

G. H. Parkinson, D. V. S. (Columbia V. C., '81), Portland, Conn., voucher, Richard P. Lyman.

Chester R. Perkins, D. V. M. (N. Y. S. V. C., '99), Hardys, N. Y., vouchers, James Law, W. L. Williams.

J. J. Riordan, D. V. S. (A. V. C., '94), Beverly Farms, Mass., vouchers, A. J. Sheldon, F. H. Osgood; laid over.

Wm. G. Shaw, V. M. D. (U. P., '97), Cincinnati, Ohio, vouchers, Leonard Pearson, W. Horace Hoskins.

Martin J. Tewey, D. V. S. (A. V. C., '89), Irvington-on-the-Hudson, N. Y., voucher, Wm. Henry Kelly.

George V. Towne, D. V. S. (A. V. C., '90), Thompson, Conn., voucher, Richard P. Lyman.

Albert Babb, M. D. C. (C. V. C., '93), Springfield, Ill., voucher, E. M. Nighbert.

Henry W. Dustan, D. V. M. (N. Y. S. V. C., '98), Morristown, N. J., voucher, W. L. Williams.

Wm. J. Fredericks, V. S. (N. Y. C. V. S., '95), Delawanna, N. J., voucher, J. Payne Lowe.

E. M. Heath, D. V. S. (C. V. C., '87), Winsted, Conn., voucher, R. P. Lyman.

Samuel G. Hendren, V. M. D. (U. P., '94), Indianapolis, Ind., voucher, Tait Butler.

Herbert Hoopes, V. M. D. (U. P., '99), Bynum, Md., vouchers, A. W. Clement and Leonard Pearson.

William McLean, V. S. (Ont. V. C., '82), Portland, Or., voucher, S. B. Nelson.

J. N. Megary, V. M. D. (U. P., '98), Baltimore, Md., vouch-

ers, A. W. Clement and W. H. Martenet.

W. T. Monsarrat, V. S. (Ont. V. C., '89), Honolulu, H. I., vouchers, S. Stewart and Roscoe R. Bell.

R. C. Moore, D. V. S. (C. V. C., '87), Kansas City, Mo., voucher, S. Stewart.

W. J. Myers, V. S. (O. S. U., '97), St. Louis, Mo., vouchers, C. Miller and Chas. Ellis.

A. G. G. Richardson, V. M. D. (U. P., '94), Cambridge, Mass., vouchers, A. J. Sheldon and J. P. O'Leary.

S. F. Wadsworth, M. D. V. (Harvard, '99), Keene, N. H., voucher, R. P. Lyman.

Henry S. Lewis, M. D. V. (Harvard, '89), Chelsea, Mass., vouchers, Wm. Stinson and D. B. Pierce.

R. W. Tuck, V. S. (Ont. V. C., '92), Indianapolis, Ind., voucher, Tait Butler.

S. L. Blount, V. M. D. (U. P., '98), Philadelphia, Pa., vouchers, Leonard Pearson and W. H. Hoskins.

C. A. Hamblet, V. M. D. (U. P., '97), Lowell, Mass., voucher, J. F. Winchester.

M. Jacobs, V. M. D. (U. P., '99), Philadelphia, Pa., vouchers, L. Pearson and C. J. Marshall.

R. V. Smith, V. S. (Ont. V. C., '98), Baltimore, Md., vouchers, A. W. Clement and H. H. Mackie.

E. S. Fry, M. D. C. (C. V. C., '94), Naperville, Ill., vouchers, J. M. Wright and W. H. Hoskins.

Clarence Loveberry, D. V. M. (O. S. U., '96), St. Paul, Minn., vouchers, Chas. E. Cotton and W. H. Hoskins.

J. E. Ryder, D. V. S. (A. V. C., '84), New York City, vouchers, W. H. Pendry and H. D. Hanson.

W. A. Heck, D. V. M. (Iowa State Col., '91), Sioux City, Ia., vouchers, S. Stewart and G. A. Johnson.

W. J. Martin, V. S. (C. V. C., '97), Kankakee, Ill., vouchers, W. H. Hoskins and Roscoe R. Bell.

Albert J. Kline, V. S. (O. V. C., '94), Wauseon, O., voucher, T. Bent Cotton.

Michael Kenny, V. S. (N. Y. C. V. S., '88), New York City, vouchers, H. D. Gill and James Law.

Edward F. Sanford, D. V. S. (A. V. C., '98), Waterbury, Conn., vouchers, Thomas Bland and C. E. Clayton.

Theodore A. Keller, D. V. S. (A. V. C., '92), New York City, vouchers, E. B. Ackerman and J. L. Robertson.

E. C. Porter, V. S. (O. V. C., '91), New Castle, Pa., vouchers, C. C. McLean and W. H. Hoskins.

Albert G. Kern, V. M. D. (U. P., '99), Knoxville, Tenn., vouchers, W. H. Hoskins and L. Pearson.

Thomas J. Herr, D. V. S. (A. V. C., '79), New York City, vouchers, James Law and C. E. Clayton.

Charles R. Witte, D. V. S. (A. V. C., '96), New Britain, Conn., vouchers, James Law and H. D. Hanson.

James M. Armstrong, M. D. V. (Harvard, '96), Providence, R. I., voucher, R. P. Lyman.

Drs. R. S. Huidekoper and H. P. Rogers were reinstated upon payment of dues.

REPORTS OF COMMITTEES.

The report of the Publication Committee was next read by Chairman Williams, which detailed its operations with the report of the proceedings at Omaha, and giving the arrangements made for the present meeting.

The Committee on Army Legislation was next called upon and Chairman Salmon submitted the following report :

Mr. President :

Your Committee on Army Legislation would respectfully report that in the early part of the last session of Congress the desirability of legislation improving the status of the army veterinarian was brought to the attention of the Committee on Military Affairs of both the House and the Senate. The importance of securing such action by Congress in the bill for the reorganization of the army was fully appreciated, and a circular letter was addressed to the members of our profession in the United States asking that their influence be exerted to aid in securing this result. By the courtesy of Dr. W. Horace Hoskins, one of the members of the committee, a very complete list of veterinarians was placed at the disposal of the committee for this purpose. It was possible in this way to reach something like 5000 gentlemen, who from their profession and experience would naturally be interested in and appreciate the value of a properly equipped and organized veterinary service in the army.

The response to this appeal to our profession was extremely gratifying. Not only did a large number of members write to their Senators and Representatives explaining the necessity to good service of the legislation desired, but they generously assisted the committee with funds to pay for printing, postage, and other expenses, so that the treasury of this association was not drawn upon.

The chairmen of both Committees of Congress on Military Affairs were favorable to legislation giving increased compensation and rank ; and it is believed that the clause in the bill as reported, providing that the veterinarians with the rank, pay and allowance of second lieutenant of cavalry with each cavalry regiment, would have passed without opposition had it not been for the unfortunate defeat of the entire bill by a compromise measure. The compromise bill originated in the Senate, and the chairman of your committee was given a hearing before the subcommittee which had the measure in charge. It was late in the session, time was very limited, many interests were to be heard, and while the

profession did not secure all that it desired, your committee is of the opinion that there is reason for encouragement rather than despair.

The bill as passed provides for two veterinarians with each regiment of cavalry, one to have the pay and allowances of a second lieutenant of cavalry, the other to have the pay of seventy-five dollars per month and the allowances of a sergeant major. It is also provided that the veterinarian appointed to the first grade shall not be so appointed until he shall have passed an examination, to be prescribed by the Secretary of War, as to his physical, moral and professional qualifications. There is a further provision that the veterinarians now in the service who do not pass such competitive examination shall be eligible to the positions of the second class under such rules as are now prescribed by the regulations.

It is to be sincerely regretted that the veterinarian of the first class is not given the rank as well as the pay and allowances of a second lieutenant of cavalry. - A step has, however, been made in the right direction, the merit system is recognized by the inauguration of examinations, provision has been made for the retention of deserving men who have long and faithfully served in the army and who may not be able to pass the examinations, and it is believed that there will be a disposition in the next Congress to do something more.

Your committee desires especially to express its appreciation of the encouragement and assistance which it received from the Hon. James Wilson, Secretary of Agriculture, and of the courteous treatment and sympathy extended by Hon. J. A. T. Hull, Chairman of the House Committee on Military Affairs. Many members of both houses of Congress have expressed their interest in the effort to secure an efficient veterinary organization for the army and their willingness to aid whenever the opportunity offered.

Your committee has endeavored in its work to show the importance of having an organized veterinary service which should extend to the artillery and quartermaster's department, as well as to the cavalry. It has also tried to make plain the fact that a few veterinarians holding inferior positions in the cavalry regiments, necessarily scattered over the country, having no connection with each other and without means of concerted action, could not be expected to meet the more serious veterinary problems with which the War Department is often confronted. Such veterinarians in the past have reported that they could neither obtain proper medicines nor instruments; that they had no authority to cause the treatment which they prescribed to be carried into effect, that not being consulted in the purchase of horses, animals with contagious diseases were often introduced, and much damage was frequently caused before the contagion could be controlled.

The present veterinary service of the army is undoubtedly a disgrace to an enlightened and progressive country. It is a service which to accomplish anything must be able to carry its directions into effect, and yet, it is without rank or authority; it is a service which requires instruments and supplies of a special character, and detailed instructions as to the manner of meeting the various emergencies which are liable to arise, and yet it is without a head; the veterinarian must endure all the hardships and face all the dangers of the service, and yet neither he nor his family have any prospects of a pension in case of disability or death in the service.

The result of this anomalous condition of affairs was very apparent in the course of our short war with Spain. The government corrals became hotbeds for the production and dissemination of glanders, and the efforts to check this disease were in some cases so crude that they might provoke a smile of derision on the countenance of our enemies, but could only bring a blush of shame and indignation to the face of a humane American citizen. At one place in Florida, weeks of time were spent in testing animals with mallein, and, yet, horses which showed unmistakable symptoms of glanders upon the most superficial examination were not separated from the healthy ones, and nose-bags were used indiscriminately. Injured and sick horses went without treatment because the veterinarians lacked medicines, instruments, instructions and authority. There is little excuse for such a condition of affairs. While this is a rich country and the loss of a few millions more or less on horses does not affect us seriously, it is, nevertheless, a humane country, and our people are not disposed to tolerate unnecessary suffering and cruelty to animals, either by individuals or by the Government. The fact, is the Government, through its various departments, should set an example of what is required in this civilized age in the way of intelligent and humane treatment of the animals which it controls. To accomplish this the army veterinary service needs to be reorganized; it needs a head. With the present service there can at the best be but such practice as can be conducted under unfavorable conditions by veterinarians who are willing to take positions with the pay of second lieutenants; but, with one experienced and really capable man at the head, the entire service could be brought approximately to his level.

In conclusion, your committee mentions with much sadness the death of Dr. M. J. Treacy, who labored so long to improve the veterinary service of the army, who was for many years a member of this association, and who died at his post of duty in Cuba from yellow fever. His career illustrates most vividly the dangers which the veterinarian in the army must face, and the ungenerous treatment which the country accords him. It is a pathetic instance in this connection that Dr. Treacy had studied hard and faithfully for the examination for the new position created in the recent legislation, and that although he passed with the highest mark reached by any of the applicants, he did not live to learn of his success. On the very day that the examination papers were marked in Washington, the news of his death came over the wires from Cuba. Let us, who are still living, see to it that his labors and sacrifices to secure intelligent and humane treatment for army horses, and at the same time to advance the standard of his profession, shall not be forgotten, and that the cause for which he died shall yet succeed.

Dr. R. S. Huidekoper, also of the Army Committee, made a lengthy report upon the same subject, which will be given in a later issue of the REVIEW.

Treasurer Lowe and Secretary Stewart read their respective reports. As they are of importance only to members of the A. V. M. A., and as they will be published in full in the "Proceedings," they are omitted here as an unnecessary encroachment upon our space.

The reports of the various State Secretaries were read by title and referred to the Publication Committee for incorporation in the "Proceedings."

At this point the Convention adjourned for lunch, resuming at 2.30 P. M.

READING OF PAPERS.

Upon reassembling the President called upon Dr. Roscoe R. Bell, of New York, who read a paper entitled "Acetanilid as an Antipyretic for the Horse," which was discussed by Drs. Stewart, McLean, and others.

Dr. E. B. Ackerman, of New York, then opened the discussion upon "Meat Inspection," going over the papers presented at Omaha, and was followed by Drs. Faust, Salmon, Hoskins, Pendry, Gill, Donaldson, and Lowe.

ELECTION OF OFFICERS.

The second day's session convened at 10.15, when the annual election of officers took place, which resulted as follows:

President—Leonard Pearson, of Pennsylvania.

Vice-President, Eastern States—J. F. Winchester, of Massachusetts.

Vice-President, Middle Western States—S. Brenton, of Michigan.

Vice-President, Western States—H. L. Ramacciotti, of Nebraska.

Treasurer—W. Herbert Lowe, of New Jersey.

Secretary—S. Stewart, of Kansas.

READING OF PAPERS.

The reading of papers was again resumed, and Dr. W. H. Dalrymple, of Louisiana, read a most carefully-prepared and interesting thesis upon "Dietetics," and, although it was listened to with marked attention, no discussion was indulged in.

Dr. E. A. A. Grange read a valuable paper on "Disinfection," in the discussion of which many took part.

Dr. W. Herbert Lowe, of New Jersey, next presented the subject of "Routine Manipulations and Operations," in a lengthy paper of much value, and which will be published in an early issue.

Dr. J. P. Turner, of Washington, D. C., made "A Plea for a More General Use of Anæsthesia in Veterinary Surgery," which was full of instructions and suggestions.

Dr. Richard P. Lyman, of Connecticut, brought forward the

subject of "Azoturia, its Pathology and Treatment," with many new thoughts upon this mysterious malady.

Dr. Jno. M. Parker, who was in Scotland, sent over his paper on "Rabies," which by his request was read by Dr. J. F. Winchester. It received a liberal discussion at the hands of Drs. Salmon, Turner, Mayo, White, Cary, Robinson, Lowe, and Hoskins, the last named contending for the practical non-existence of the disease, its frequent diagnosis being dependent upon error. We wonder what disease it is that presents such constant symptoms, is easily produced by inoculation, and which every one errs so much upon.

At this point Chancellor McCracken, of the New York University (with which the New York College of Veterinary Surgeons and the American Veterinary College have so recently affiliated), was recognized in the audience and was invited to a seat on the platform. He was seeking information upon veterinary science, and he could not have entered at a more opportune moment, for as he became seated upon President Clement's right, Dr. N. S. Mayo, of Connecticut, delivered a most scholarly address upon the subject of "The Veterinarian of the Future," and was followed by Dr. James B. Paige, of Massachusetts, upon "European Veterinary Institutions," illustrating his subject by numerous photographs taken by him while making a tour of the Continent.

Dr. Charles A. Cary, of Alabama, presented "Ulceration of the Stomach in Equines," in a manner that riveted general attention.

The Executive Committee submitted a recommendation that the Chair appoint a committee of three to confer with the board which meets in Washington in 1900 for the purpose of revising the United States Pharmacopœia with the object of securing an appendix to include American veterinary medicines, fashioned after the supplement to the French Codex. The recommendation was adopted, and the Chair stated that he would appoint Dr. W. J. Martin, of Kankakee, Ill., chairman, and Drs. Roscoe R. Bell, of New York, and L. A. Merillat, of Illinois.

Dr. C. C. McLean, of Pennsylvania, next offered a paper on "Dairying from a Pure Milk Standpoint," illustrating his subject with many demonstrations and tests for purity. The subject engrossed the attention of very many who are specially interested in milk inspection, and the doctor was plied with questions concerning his conclusions.

By special permission of the association, at the request of many members, although the time was short, and the hour assigned it had passed, Dr. Leonard Pearson read his paper, "The Suppression of Tuberculosis in Pennsylvania," the discussion upon which was postponed until 1900.

A number of papers were then read by title, and ordered printed in the "Proceedings," much regret being expressed that time would not permit their reading and discussion. Especially was this the case with Dr. Schwarzkopf's paper, which had been prepared at the request of members, and had involved much correspondence, as it was largely statistical, and upon a subject of absorbing practical interest. The papers thus treated were: "The Schmidt Treatment of Parturient Paresis," by Dr. Olof Schwarzkopf; "The Tick in North Carolina," by Dr. Cooper Curtice; "Rheumatism in Domestic Animals," by Dr. Herman Wellner; "Chicken Cholera," by Dr. Charles H. Higgins; "Control of Glanders in Massachusetts," by Dr. Maurice O'Connell; "State Control of Glanders in Minnesota," by Dr. M. H. Reynolds; "On the Importance of Keeping a Case Book and Reporting Cases," by Dr. Jno. J. Repp; "Tetanus Antitoxin," by Dr. Edward M. Ranck; "Antitoxins," by Dr. H. D. Gill; and "Some Aspects of Future Veterinary Legislation," by Dr. W. Horace Hoskins.

The Auditing Committee reported that they had examined the accounts of the association and found them correct.

The Committee on Resolutions then presented a number of resolutions, and they were all adopted. They were upon the deaths of Drs. Treacy and Michener, upon tuberculosis and rabies, thanking the local committee and managers of the American Horse Exchange for favors and courtesies.

On Tuesday and Wednesday afternoons

THE PATHOLOGICAL EXHIBIT

at Eastman's Abattoirs, Fifty-ninth Street and Eleventh Avenue, was visited, and all agreed that it was a stupendous illustration of diseased tissues as found in the great slaughter-beds of the country. Hours and days could have been spent among the vast collection, and many of the visitors collected sections from the specimens for the purpose of microscopical examination. The following is a complete list of the specimens in the exhibit:

(1) Steer, tuberculosis, heart; (2) cow, tuberculosis, lungs and part of thorax; (3) sow, tuberculosis, lungs and heart; (4) cow, tuberculosis, tibia; (5) hog, tubercular arthritis; (6) hog, tuberculosis, lung and

liver; (7) hog, tuberculosis, lung, liver and intestine; (8) cow, tuberculosis, mammary gland; (9) sheep, nodular disease, intestines; (10) sheep, jaundice; (11) hog, jaundice; (12) hog, jaundice; (13) hog, chronic cholera; (14) hog, cholera; (15) steer, actinomycosis, inferior maxilla; (16) steer, actinomycosis, superior maxilla; (17) steer, actinomycosis, superior maxilla; (18) steer, actinomycosis, post-pharyngeal gland; (19) steer, chronic glossitis; (20) calf, Texas fever; (21) sheep, ictero-hematuria; (22) steer, mucous membrane, œsophagus, parasites; (23) cow, mammitis; (24) hog, tuberculosis, bone; (25) hog, cysticercus cellulosus, tongue and part of psoas; (26) steer, hydrocele; (27) sow, purulent nephritis; (28) steer, abnormal foot; (29) hog, abscess of kidney; (30) sow, extra-uterine pregnancy; (31) sow, extra-uterine pregnancy; (32) sow, extra-uterine pregnancy; (33) sow, tuberculosis, cervical vertebra; (34) hog, foetus, 14 weeks; (35) sow, uterus, 14 weeks, pregnant; (36) hog, tumor of kidney; (37) steer, actinomycosis, lungs; (38) hog, cysticercus cellulosus, heart; (39) sow, echinococcus vet.; (40) hog, cystic liver; (41) steer, actinomycosis, lungs; (42) sow, ovarian cysts; (43) sow, ovary nearing oestrus; (44) hog, liver abnormal in shape; (45) cow, tuberculosis, sternum; (46) hog, tuberculosis, heart; (47) hog, chronic hepatitis; (48) steer, reticulum, foreign bodies; (49) hog, skin disease; (50) hog, diamond skin disease; (51) hog, tuberculosis, hock; (52) sow, tuberculosis, part of thoracic wall; (53) steer, pleurisy; (54) hog, tuberculosis, pleura; (55) hog, tuberculosis, pleura; (56) hog, skin disease, 2 specimens; (57) hog, tuberculosis, vertebra; (58) hog, ringworm; (59) cow, tuberculosis, bone; (60) hog, cholera, viscera; (61) ? cholera; (62) sheep, cysticercus tenuicollis; (63) sow, tuberculosis, liver and lymphatics; (64) steer, nephritis; (65) hog, degenerated kidney; (66) steer, liver, multilocular cysts; (67) steer, cystitis; (68) steer, mucous membrane œsophagus, parasites; (69) cow, eye, contusion; (70) hog, testicle, adenoma; (71) hog, cystic kidney; (72) hog, cystic kidney; (73) hog, cystic kidney; (74) hog, kidney abscess; (75) sow, kidney abscess; (76) sheep, neoplasm; (77) hog, cystic kidney; (78) hog, large white kidney; (79) hog, adenoma of kidney; (80) hog, cystic kidney; (81) hog, kidney; (82) steer, multiple abscess, liver; (83) steer, hepatic abscess; (84) steer, hepatic abscess.

APPOINTMENT OF SECRETARIES AND COMMITTEES FOR 1899-1900.

President Pearson has made the following appointment of Resident State Secretaries for 1899-1900:

RESIDENT STATE SECRETARIES.

Alabama—R. H. Drummond, Birmingham; *Arizona*—J. C. Norton, Phoenix; *California*—Fred. E. Pierce, 1724 Webster Street, Oakland; *Colorado*—Charles Gresswell, Montclair; *Connecticut*—R. P. Lyman, 997 Main Street, Hartford; *Cuba*—C. D. McMurdo, Santiago; *Delaware*—H. P. Eves, 507 West Ninth Street, Wilmington; *District of Columbia*—A. M. Farrington, 1436 Chapin Street, Washington; *Georgia*—Ray J. Stanclift, Americus; *Hawaiian Islands*—W. T. Monsarrat, Honolulu; *Illinois*—E. M. Nighbert, Sterling; *Indiana*—J. R. Mitchell, Evansville; *Iowa*—T. A. Bown, Chariton; *Kansas*—W. H. Richards, Emporia; *Ken-*

tucky—J. W. Jameson, Paris; *Louisiana*—W. H. Dalrymple, Baton Rouge; *Manitoba*—W. J. Hinman, Winnipeg; *Maryland*—E. C. Fox, 2823 Huntington Street, Baltimore; *Massachusetts*—Benj. D. Pierce, 27 Sanford Street, Springfield; *Michigan*—Geo. W. Dunphy, Quincy; *Minnesota*—S. A. Ward, St. Cloud; *Mississippi*—J. C. Robert, Agricultural College; *Missouri*—Chas. Ellis, 3230 Locust Street, St. Louis; *Montana*—M. E. Knowles, Helena; *Nebraska*—V. Schaefer, Tekamah; *New Hampshire*—Lemuel Pope, Jr., 101 State Street, Portsmouth; *New Jersey*—J. Payne Lowe, 19 Bloomfield Avenue, Passaic; *New York*—William Henry Kelly, 195 Western Avenue, Albany; *North Carolina*—A. S. Wheeler, Biltmore; *North Dakota*—T. D. Hinebaugh, Tower City; *Nova Scotia*—Wm. Jakeman, Halifax; *Ohio*—T. Bent Cotton, Mt. Vernon; *Ontario and Quebec*—Chas. H. Higgins, 168 Mansfield Street, Montreal; *Oregon*—Wm. McLean, 328 Fourth Street, Portland; *Pennsylvania*—W. H. Ridge, Trevoise; *Porto Rico*—G. E. Griffin, Mayaguez; *Rhode Island*—J. M. Armstrong, Providence; *South Carolina*—Benj. McInnes, Charleston; *Tennessee*—Joseph Plaskett, 529 Broad Street, Nashville; *Texas*—M. Francis, College Station; *Virginia*—E. P. Niles, Blacksburg; *Washington*—S. B. Nelson, Pullman; *Wisconsin*—R. H. Harrison, 83 Fourteenth Street, Milwaukee.

COMMITTEES FOR 1899-1900.

Executive.—Tait Butler, Chairman, D. E. Salmon, W. Horace Hoskins, M. H. Reynolds, A. W. Clement, A. T. Peters, Roscoe R. Bell.

Finance.—Lemuel Pope, Jr., Chairman, M. Stalker, G. A. Johnson.

Publication.—M. H. Reynolds, Chairman, R. P. Lyman, John J. Repp, Roscoe R. Bell, S. Stewart.

Intelligence & Education.—W. H. Dalrymple, Chairman, James Law, John W. Adams, N. S. Mayo, A. H. Baker.

Diseases.—C. A. Cary, Chairman, James B. Paige, John P. Turner, E. M. Nighbert, M. E. Knowles.

Army Legislation.—D. E. Salmon, Chairman, R. S. Huidekoper, W. Horace Hoskins, M. Stalker, A. W. Clement.

Resolutions.—L. H. Howard, Chairman, Wm. Herbert Lowe, C. E. Cotton, L. A. Merillat, W. B. Niles.

THE SURGICAL CLINICS.

The clinics were conducted at the American Horse Exchange, the facilities being about perfect. While the operations were not very numerous, they were most important and instructive, and elicited the attention and applause of all who witnessed them. Dr. Williams brought with him his operating table and ambulance for transferring patients from the place of operation to the stall or other point. They were shown and demonstrated by the Doctor, and their many good points and practicability appreciated by the spectators. The following operations were performed:

Thoroughbred filly, two years old, furnished by Dr. William Sheppard, ovariectomy per vagina—Dr. W. L. Williams.

Black gelding, nine years old, furnished by Dr. H. D. Gill, median neurectomy—Dr. C. E. Clayton.

Gray gelding, nine years old, furnished by operator, latearl fibro-chondrotomy—Dr. George H. Berns.

Bull terrier bitch, furnished by Dr. Thomas Sherwood, ovarioomy by flank operation—Dr. W. L. Williams. After the incisions had been made it was found that the patient was pregnant, whereupon the operator removed the uterus *en masse*.

Dr. Williams demonstrated his method of producing chloroform anæsthesia, being very successful in bringing his patient under its influence.

There were displays of surgical instruments and appliances by various manufacturers, as well as other articles suitable for veterinarians.

NOTES OF A. V. M. A.

Fifty-six ladies enjoyed the sail to Rockaway, and 224 in all took seats at the tables.

The ladies were conducted through the *World* Building and the Aquarium (formerly Castle Garden) on Wednesday.

The theatre party for the ladies took place on Wednesday evening, at Proctor's Pleasure Palace, and thirty-seven attended.

The Hosack Room at the Academy of Medicine fitted the thirty-sixth annual meeting as well as though it had been designed to order.

Drs. Scott, of Independence, and Fullarton, of Dubuque, Iowa, spent Saturday, 9th, visiting practitioners of New York and Brooklyn.

Maine sent a strong delegation from her State Association; Pennsylvanians were everywhere, while there were large numbers from New Jersey, Maryland, Ohio, Iowa, Minnesota, Nebraska, Kansas, Missouri, and other States.

A merry party of ladies and gentlemen left the excursion party at the Captain's Pier, Bath Beach, and boarded the trolley for Coney Island, where they indulged in sight-seeing until late.

Dr. Ramacciotti, of Omaha, appeared to enjoy his trip very much, it serving the dual purpose of seeing his aged mother and other relatives, and renewing the pleasant acquaintances made at the 1898 meeting.

The Illinois State Association was represented by President W. J. Martin, of Kankakee, who extended a cordial invitation to all to attend its annual meeting. So did Secretary Rhoads, of the Pennsylvania Association.

Sixty new members were elected at this meeting, and only just a few dropped from the membership roll. At this rate it will not be long until the A. V. M. A. will include most of the eligible men of the country.

The Old Guard were there, and enjoyed themselves like boys. J. H. Stickney, of Boston, was as radiant and jolly as ever, while Brother Foelker, of Pennsylvania, was even more so. The Rayners (Thomas B. and James B.) seldom miss a meeting, and this year didn't miss a trick.

Chairman of Arrangements Gill was on his feet day and night to do everything possible for the comfort and pleasure of the guests, and if anything was lacking it was certainly not due to a want of effort and hard work. He was ably seconded by Drs. Berns, Ackerman, and Bell.

The attendance at the meetings of the A. V. M. A. and the collateral events (the State Society, Anniversary of the A. V. C., the pathological exhibit, the clinics, etc.) so far exceeded all previous records as to completely justify our prophesy that it was to be a "veterinary jubilee."

The out-of-town guests were much surprised to see so few automobiles in the streets of Gotham. The newspapers had created an impression upon them that the horse was a rare sight to behold in New York, and they were bewildered to see lines of horses pulling all manner of vehicles, while they very infrequently saw a horseless carriage.

The first member from Uncle Sam's new possessions was enrolled at this meeting, and a most valuable acquisition he is. Dr. W. T. Monsarrat, of Honolulu, Hawaii, is the new member, and our readers will find in the department of "Correspondence" this month an entrancingly interesting letter from him detailing his experiences on a mule transport to Manila, together with an insight into veterinary sanitary matters in the Philippines.

All returned to the city on the steamer save a few who left Rockaway by train to make night connections for their homes. Drs. Pendry and Foelker unfortunately lingered so long over their watermelon that the gangplank was drawn and they were left standing on the pier. They seemed not to mind it, however, and reports from the Beach give every indication that they were not altogether inconsolable.

An interesting case at the Clinic on Wednesday morning was that of a two-year-old filly, furnished by Dr. William Sheppard, of Sheepshead Bay, and operated upon by Dr. W. L. Wil-

liams, who performed ovariectomy through the vagina. She was a thoroughbred and very fast, but recently contracted the habit of kicking and refusing to run. Thinking that the cause was connected with the sexual function, she was submitted to the operation, which was skillfully and rapidly done. Dr. Sheppard has promised to acquaint REVIEW readers with the result of the experiment.

The pathological exhibit was an object lesson in the immense domain of sanitary medicine, and to the general practitioner it was a gigantic surprise. Another illustration of the wide diversity of the veterinary field, and a strong argument for specially trained men for that branch of our profession. Much credit is due Drs. Ayer, Stewart, Hickman, and the other Bureau men who made such an interesting and instructive collection of diseased tissues. It is a feature which should never be omitted from another meeting. It will do more to draw members to the meetings than a large array of papers which can be read in the "Proceedings" on winter evenings.

The excursion and clam-bake at Rockaway Beach was a novelty to many of the Western members. The day was grand, and the points of interest along the route were most entertaining. The Brooklyn Bridge, Goddess of Liberty, Bedloe's Island, Governor's Island, the historic fortifications on either side of the Narrows, Sea Gate, West Brighton, Brighton, the Manhattan, the challenging yacht, *Shamrock*, and many other objects kept the excursionists entertained, while the clam-bake itself was a delightful feast. The only circumstance which prevented the full fruition of the committee's hopes was the number in attendance. Every effort was made to secure the presence of every member and visitor to the convention, and to their oft-repeated invitation, 153 expressed an intention of participating. In consequence, arrangements were made for 160, but when the steamer pulled out from the wharf at West Forty-fourth Street, there were just 224 on board. This unprovided for addition prevented the fulfillment of the perfect arrangements made; but we believe all got enough to eat.

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

The annual meeting convened for regular sessions in one of the assembly rooms at the New York Academy of Medicine September 8th at 11 A. M. All of the officers of the society were present. Instead of the usual roll-call, a tablet was passed

among those present to register their names and addresses. The roster showed that these gentlemen attended the meeting: Ackerman, E. B., Brooklyn, N. Y.; Armstrong, J. M., Providence, R. I.; Atchison, Sam'l, Brooklyn, N. Y.; Bell, R. R., Brooklyn; Berns, Geo. H., Brooklyn; Cowie, Chas., Ogdensburg, N. Y.; Clayton, C. E., N. Y. City; Casey, E. M., Oxford, N. Y.; Cotton, C. E., Minneapolis, Minn.; Doyle, Thos. H., N. Y. City; Prof. J. D. Duncan, Toronto, Ont.; Darby, J. W., Fort Plain, N. Y.; Donaldson, L. A., Hartford, Conn.; Ellis, Robt. W., N. Y. City; Elliott, W. A., Walton, N. Y.; Gage, S. H., Ithaca, N. Y.; Gill, H. D., N. Y. City; Genung, J. A., Ithaca, N. Y.; Hanson, H. D., N. Y. City; Hoskins, W. H., Philadelphia, Pa.; Huidekoper, Philadelphia, Pa.; Harger, S. J. J., Philadelphia, Pa.; Hitchings, W. H., Boston, Mass.; Howard, L. H., Boston, Mass.; James, V. L., Cooperstown, N. Y.; Jones, R. C., Port Jefferson, N. Y.; Kelly, W. H., Albany, N. Y.; Kesler, G. C., Holly, N. Y.; Kilborne, F. D., Kelloggsville, N. Y.; Knight, Emil, Rochester, N. Y.; Law, James, Ithaca, N. Y.; Lowe, W. H., Paterson, N. J.; Lott, J. P., Chicago, Ill.; Mayo, N. S., Storrs, Conn.; Meredith, Thos., Jamestown, N. Y.; Meredith, W. A., Corry, N. Y.; Moore, V. A., Ithaca, N. Y.; Mayne, H. D., Malone, N. Y.; O'Shea, A., N. Y. City; O'Dea, T. F., Saugerties, N. Y.; Poucher, M. M., Oswego, N. Y.; Pearson, Leonard, Philadelphia, Pa.; Perkins, C. R., Hardys, N. Y.; Perkins, R., Hardys, N. Y.; Simpson, W. M., Malden, Mass.; Seltzer, D. K., Wellsville, N. Y.; Salisbury, W. H., Clifton Springs, N. Y.; Thompson, C. R., Somerville, Mass.; Williams, W. L., Ithaca, N. Y.; Winchester, J. F., Boston, Mass.; Young, W. A., Utica, N. Y.

The President, Dr. Baker, offered the usual annual address, which gave a brief survey of the activity of the profession during the past year.

The Secretary's report was received, which dealt with the character of the work of that office, calling special attention to legislative work, and the possible need of some modification of the veterinary law as it relates to requirements of candidates upon taking the final examination; and also spoke of State medicine as it relates to sanitary reform of the dairy industry of the State. The question of the Society's finance and of delinquent members were detailed.

The Board of Censors were called to convene, to consider applications for membership, resignations and such other business as might be before them.

On reports from standing committees, Dr. Kelly, of Albany,

gave an oral report of the work of the Committee on Legislation; detailing the nature of the various bills which were before the last Legislature, all of which were to amend the law in some form or other in behalf of quackery and the maintenance of ignorance as it abounds in the profession by grace of former legislative acts. Dr. Kelly recommends that all members of the society, and others who are interested in the upbuilding of the profession, put forth a special effort in the future in maintaining the law as it is, as the friends of ignorance and no law are going to make a special effort during the forthcoming session of the Legislature to place them in the fore rank, fitness or no fitness.

The application of Drs. Roscoe R. Bell and Claude D. Morris to amend the By-Laws as carried over from the last annual meeting was acted upon favorably, and relates to the construction of the committee on legislation, instead of the society electing three of the five members of the committee as heretofore, they shall henceforth be appointed by the President.

On unfinished business Dr. McLean, of Brooklyn, opened the question of glanders, carrying over discussion from last meeting, as it relates to the treatment of that disease by some practitioners, in disobedience to the law's demand, which requires destruction of glandered animals. There was discussion on this point, but no action taken.

The Board of Censors made a favorable report on the applications for membership of Dr. W. H. Phyfe, of Delhi; Dr. H. D. Mayne, of Malone; Dr. Wm. H. Salisbury, of Clifton Springs; and Dr. T. H. Doyle, of New York City. The society approved the action of the Censors by duly electing these applicants to full membership. The President introduced them in a few words well calculated to impress them with the idea that they were a welcome addition to our society and expressed the belief that the relationship would prove to be a moral and professional advantage to both. The Censors accepted the resignation of Dr. Nelson P. Hinkley, formerly of Buffalo, but at present practicing in Atlanta, Ga.

An amendment to the By-Laws making an additional paragraph was submitted in due form, and reads as follows: "Medical men and others who have contributed to the advancement of the science of veterinary medicine, either by comparative pathological demonstration or by approved contributions to the literature of the profession, may, on the endorsement of the Board of Censors, and a two-thirds vote of the members present

be elected to honorary membership, but not more than two names shall be considered at any one annual meeting." A motion prevailed to submit the question of amendment at the present meeting, which was approved by unanimous consent.

Dr. Kilborne moved to grant visiting veterinarians the privileges of the floor during the discussion of professional papers; this motion was acceded to by the members.

As announced, Dr. Roscoe R. Bell gave his paper, entitled "Shoulder Lameness in the Horse."* The theme was the product of a number of years' experience in the treatment of lameness. Doctor Bell gave many new ideas respecting the symptoms and diagnosis of shoulder lameness. A large number took part in the discussion which followed. Adjourned for lunch.

At the opening of the afternoon session, the President called on Dr. Leonard Pearson, of Philadelphia, Pa., to give the members a brief talk on the question of tuberculosis in cattle. Doctor Pearson prefaced his remarks by giving a brief history of the discovery of the bacillus of the disease, the usual modes of transmission, and throughout endeavored to impress upon his hearers the importance of harmonious action upon all points which are established by the recognized authorities respecting the histology of the disease and the method of diagnosis, and also urged that the profession stand together in opinion when discussing the tenets of State medicine.

Professor Veranus A. Moore, of the State College, gave an interesting discourse on "Streptococcus and its rôle in Comparative Pathology."

Dr. Geo. H. Berns, of Brooklyn, read an instructive paper on "Cartilaginous Quittor in Horses."

Professor Simon H. Gage, of the State College, instructed and edified his hearers in a brief history, demonstrated with charts, on the "Origin of the Horse in Geologic Times, and upon the Pennycuik Experiments in Crossing Horses with Zebras." Aided with reference, Modern Science Series, "The Horse," by W. H. Fowler, D. Appleton & Co., and "The Pennycuik Experiments," by J. C. Ewart, Adams & Chas. Brown, London.

Sept. 9.—Morning session opened by Dr. V. A. Moore exhibiting some "Pathological Specimens (liver and kidney), with Descriptive Remarks," assisted with microscopic specimens.

Professor James Law, of the State College, read a paper,

* Printed elsewhere in this issue.

subject matter of recent investigation, on "An Infectious Mycosis of the Lungs and Air Passages in Solipeds."

Professor W. L. Williams, of the State College, theme, "Iodine in the Treatment of Poll-Evil and Fistulous Withers," was very interesting and instructive.

Owing to the multiplicity of duties as a member of the committees of arrangements for both the American and State Societies, Professor Harry D. Gill asked that his paper, "Infectious Dermatitis and Cellulitis in Horses" be carried over to the next annual meeting, as he was unable to prepare the paper for this meeting.

The following request was presented to the Board of Censors:

"I beg to submit for your consideration the names of two gentlemen who have contributed to the advancement of veterinary science, to become honorary members of this society, namely, Veranus A. Moore, of Ithaca, and Simon H. Gage, of Ithaca.

Signed,

C. D. MORRIS."

The Board endorsed the request, and the members approved of the same, making their election for membership unanimous.

The members proceeded to nominate and elect officers for the ensuing two years; Roscoe R. Bell was the unanimous choice of the members for President. Geo. H. Berns and Charles Cowie were nominated for Vice President; Dr. Berns was elected. The present Secretary was retained.

The following were chosen for Censors: Harry D. Gill, E. B. Ackerman, H. D. Hanson, W. H. Kelly and James Law.

Also the following gentlemen received ballots as legal nominees, the ten highest to be submitted to the Regents, from which number five will be selected to compose the Board of Veterinary Medical Examiners, to hold office for five years from August 1st, 1900: Geo. H. Berns, 16; W. H. Kelly, 15; E. B. Ackerman, 14; F. D. Kilborne, 14; C. D. Morris, 14; Charles Cowie, 13; J. A. Bell, 12; W. L. Baker, 12; T. F. O'Dea, 11; J. A. Genung, 11; Sam'l Atchison, 8; Arthur O'Shea, 7; V. L. James, 7; H. B. Ambler, 6; H. W. Skerritt, 6; Thos. H. Doyle, 2.

A hearty vote of thanks was given the essayists for their worthy productions, and also sincere appreciation was manifested toward the Committee of Arrangements for the convenience and comfort provided for the members during the session, and for the completeness of the programme.

The society will hold its next annual meeting during September at Ithaca.

CLAUDE D. MORRIS, *Secretary*.

NOTES OF NEW YORK STATE MEETING.

Those who attended the State meeting listened to the reading of some extremely valuable practical and scientific papers.

The A. V. M. A. overshadowed the State meeting numerically only, for many who attended both thought the proceedings of the latter equally interesting and instructive.

Dr. Claude D. Morris placed himself right before the society in denying in unmeasured terms a report that he had given utterance to the opinion that tuberculosis could arise from unsanitary conditions simply. The correct interpretation of his remarks would have made him responsible for the assertion that where the tubercle bacillus is present its development is greatly facilitated by lack of proper sanitation, and is greatly retarded where sanitary measures are in existence.

The question of clinics at the next State meeting is already being agitated. Excellent facilities can be obtained at Ithaca, there are many eminent surgeons within the membership, and it will undoubtedly greatly enhance the value of the meeting.

Under suspension of the by-laws by unanimous vote, the society elected to honorary membership two members of the medical profession, Professors Veranus A. Moore and Simon H. Gage, of the New York State Veterinary College, two gentlemen who have at recent meetings presented some valuable contributions to comparative pathology in the field of sanitary medicine. This graceful act on the part of the society was not only to recognize these services to the profession, but to encourage them to further efforts in our behalf.

During the reading of Professor Moore's paper on "Streptococci," as found in the pus of "foot rot" in sheep—which the REVIEW has made arrangements to publish during the coming winter—Dr. George H. Berns, of Brooklyn, became rapturously absorbed, believing that the essayist was unraveling the etiological mystery surrounding that somewhat common disease of city horses termed by Berns and others "suppurative cellulitis." One thing seems certain: The cause of the latter affection will only be found when studied after the fashion of the essayist.

Dr. Leonard Pearson, State Veterinarian of Pennsylvania, appeared before the society and gave a very practical talk upon the subject of the practical control of contagious diseases among

animals by the various States. This brought out a very lively discussion by members on the subject as applying to New York State. The anomalous Tuberculosis Commission came in for its share of criticism, it being conclusively shown that the drawing of the salaries of its members is the only consistent and persistent act which they perform. They nominally have charge of tuberculosis in cattle and glanders in horses ; all other diseases of these animals, and all diseases in other animals are under control of the Board of Health, or Commissioner of Agriculture, or neither, or both—or which? Dr. O'Dea recited the details of an outbreak of a most fatal disease in a flock of 250 sheep which, upon post-mortem, resembled very much tuberculosis ; about sixty had died within a few weeks, and, desiring State authorities to take charge of this dangerous disease, both to the community and the live-stock interests, he wrote Dr. Kelly, of Albany, asking to whom he should apply, to which the latter replied that the Tuberculosis Commission seemed to be the properly vested authority. Communicating with this body he was informed that their jurisdiction did not extend to members of the ovine family, and that the doctor must ask the Board of Health to come to his rescue. Following his latest instructions, he laid his case before that august body, only to be told that he had been misinformed, and that by applying to the Commissioner of Agriculture his prayer would be heard. The latter gentleman showed him the error of his way, and said that no one had a right to usurp the powers of the Tuberculosis Commission by interfering in matters coming under its supervision. By this time many more sheep were dead and the doctor was getting tired of circulating, so he asked the State society to direct him how to proceed ; this the society found too great a task, and Dr. O'Dea was still groping about when the meeting adjourned. Are there no committees of the Legislature who care to take up this case, and do their duty to the agricultural and live stock interests of the State? How long is the farce to be kept up? Why does not the Tuberculosis Commission cease to exist, and why don't the Empire State have a body of intelligent men to look after such matters, under the advice and coöperation of a State veterinarian?

DR. M. R. TRUMBOWER is enjoying an increasing practice in human medicine at Monett, Mo. He still, however, takes a lively interest in his first love, evidenced by sending in his subscription to the REVIEW.

SILVER ANNIVERSARY OF THE AMERICAN VETERINARY COLLEGE.

The twenty-fifth anniversary of the A. V. C. was celebrated by the Alumni Association by a banquet at the Hotel Manhattan, on Tuesday evening, September 5, and it proved a most enjoyable occasion—not only of loyal tributes and delightful reminiscences—but one of grand prospective, for her children were paying homage to their alma mater for the last time as an individual school, for, as stated in the September REVIEW, it has become merged with the New York College of Veterinary Surgeons as a department of New York University. A large number were present, but, unfortunately, unavoidable circumstances prevented the attendance of the one to honor whom chiefly the sons of the A. V. C. had gathered; the President of the Board of Trustees, Dr. Faneuil D. Weisse, was also absent, but sent a message of congratulations. There were seated on either side of Dean *pro tem.* Coates, Chancellor Henry M. McCracken, of the University, and Dr. Jno. P. Munn, of the Trustees of that institution, while at the further end of the long banquet table was President Pendry, of the Alumni Association, and at the sides members of the faculty, a few visitors, and many graduates of the college.

When the repast had been completed Toastmaster Ryder called upon the Chancellor to respond to the toast, "Our New Alma Mater," and he did so to the satisfaction of all, as he clearly defined the relation of the University Corporation to its departments, making it very clear that it was the intention of the University in assuming the fatherhood of the two veterinary colleges to raise the new school to the highest standard of proficiency, and that there was every prospect of State appropriation and private endowment. When he had ceased his very entertaining address every one felt that the new alma mater was indeed a good one, that no fear need be felt but that a glorious perpetuity had been effected, one to which they could point with pride as the final glorification of unceasing labors to lift veterinary education from the anomalous position in which it existed when the American College had first opened its doors in 1875. Dr. Munn followed, detailing his efforts in bringing about the amalgamation and affiliation, expressing his firm conviction in the wisdom of the step for all parties concerned. His set theme was "Veterinary Education," and he argued that the time would come when it would be necessary for the student of human medicine to also take a degree in comparative medicine.

Prof. James L. Robertson responded to the toast of "The A. V. C.," indulging in delightful reminiscences, going back to his college days before the organization of the school whose grand achievements were being celebrated. His remarks were attentively absorbed by all present, who frequently interrupted the speaker by bursts of applause.

Prof. Charles A. Doremus, formerly professor of chemistry at the A. V. C., was a most welcome visitor, and his presence was pleasing to all. We fear, however, that since abandoning the atmosphere of the horse for that of compressed air he has allowed his surroundings to warp his judgment, for his reference to the approach of the period when our principal veterinary patient would be a creature of utility only as a source of alimentation, is without that well-balanced judgment which always distinguishes this scholarly gentleman.

Then President Pendry, in well rounded sentences of pathos and affection, presented to Dr. Coates, as the representative of Dean Liautard, a magnificent loving cup from the Alumni Association, which was of beautiful design, and with appropriate sketches and inscriptions. Upon the front of the bowl is an engraved likeness of the recipient, while a good representation of the college building occupies the reverse side. The inscription on the bowl is as follows: "Presented to Professor A. Liautard, M. D. V. M., by the Alumni Association of the American Veterinary College, as a token of Love, Honor, and Friendship. Silver Anniversary, September 5, 1899." On the pedestal of the cup is this: "To Our Dean, the Founder of our Alma Mater, and the Pioneer of Our Profession in America." Most touchingly did Professor Coates receive this beautiful gift in the name of the absent one, telling those present how warmly "the Old Man" would esteem this token of their love and veneration, and how he would cherish it while life lasts. When he had closed his remarks the loving cup was filled with luscious wine, and each one present pressed his lips to its brim and drank to the health and happiness of their absent friend. The cup was exhibited at the meetings of the American Veterinary Medical Association, and the New York State Veterinary Medical Society, and greatly admired by all, those acquainted with the recipient remarking that the profile of Dr. Liautard was exceedingly true to nature.

Dr. Rush S. Hudekoper was asked to speak upon "American Veterinary Science," which he did by dating its origin from the formation of the United States Veterinary Medical Associa-

tion, whose progress he followed up to date, closing with the inside history of his recent connection with the medical department of the United States Army, showing conclusively that the newspaper attacks upon him were malicious and born of ignorance.

Dr. D. E. Salmon, of the Bureau of Animal Industry, spoke in the highest terms of the product of the A. V. C., as sanitary men, and crediting to them the greatest efficiency in the eradication of pleuro-pneumonia, and in every capacity in which their services had been employed. He doubted much that the Bureau could have so successfully combatted the great scourge save for its trained graduates. He predicted that the future of the New York-American would be the greatest school for practical veterinarians in this country.

Prof. H. D. Gill next spoke for the "Benefits of Consolidation," and if his word-pictures of all the good that is to flow from the marriage of the two old schools really come to pass, there will surely be cause for rejoicing among the alumni.

Prof. Roscoe R. Bell next spoke to the toast suggested in Prof. Weisse's letter, "Future of the New School," and, while endorsing all that had been said by those considering the same aspect of the question, took occasion to refer to the horse and the oft-mooted question of his extinction. He was of opinion that in New York and Brooklyn, at least, the automobile was already in its decadence; that fewer could be seen in the streets, and that some large dry goods houses which had been experimenting with them had been forced to abandon them on account of the two important factors—non-practicability and expense. The wear and tear of a year's service, with cost of operation, was far in excess of the price of a new wagon and team of horses, while frequent accidents to their mechanism made them uncertain and unsatisfactory. The speaker predicted a boom for the horse henceforth such as has not been seen in this country before; and, connecting this optimistic view of the situation to the subject of his toast, could not see why there would not be plenty of material to engage the energies of the new school.

Then Prof. Pearson, State veterinarian of Pennsylvania, spoke on the subject of "Veterinary Sanitary Medicine," and delighted the guests by telling points upon its ever-extending popularity and urging them to press it forward in every way possible.

Then Dr. W. Horace Hoskins, of Philadelphia, made a most impassioned address, directing his remarks chiefly to the representatives of the University, and while acknowledging that the

A. V. C. had been extremely fortunate in casting its fortunes with so powerful and progressive an educational corporation as the university, he wished its representatives to know that they, too, were to be congratulated on having allied itself with the flower of the veterinary profession—the pioneer and advance guard of progress—and taking with it a faculty the equal of any in any country.

Dr. J. H. Stickney, of Boston, probably the oldest practising veterinarian in the country, one of the charter members of the U. S. V. M. A., and always on hand when anything for veterinary advancement is at stake, responded briefly to a call upon him, and sat down amid great enthusiasm.

After the formal addresses were concluded representatives of various classes were called upon, and responded as follows: Drs. Hutchinson, Clayton (secretary of the Alumni Association, to whom more than to any one else is due the success of the silver anniversary), Lowe, Ellis, Hitchings, Herr, and Drake.

With a silent toast to those who have gone before from among the alumni, the celebration came to a close at 1 o'clock A. M.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

(Continued from page 451.)

Dr. F. C. McCurdy then presented the following paper, entitled

"COTTON SEED DISEASE."

Under the name of "cotton seed disease," this paper was prepared for the purpose of describing the acute symptoms seen in cattle, that have been overfed on a concentrated and exclusive diet of cotton seed, and also a well known lesion from the same cause that has been called "cotton seed blindness."

During last April, while a herd of small southern cattle was passing through the stock yards, it was observed that all had sore eyes,—that many seemed partially blind and in a few there was a complete loss of sight. At first glance it was supposed they were suffering with "contagious ophthalmia." As they were being driven it was noticed that they were very nervous, weak and exhausted. They moved with an uncertain, staggering gait. Respiration seemed hurried and difficult, and there was a frequent "scouring" discharge from the bowels.

On reaching the pens they showed a condition of nervous depression, remaining in one position either recumbent, or

standing with the head down, with trembling of the limbs and without ruminating. The owner said "their poor condition was caused quite recently by his mistake of feeding them too much cotton seed."

One steer, about the size of a native yearling, had been separated and tagged as a "downer." It was in great distress, and was, indeed, an exceptionally acute and fatal case. This animal was lying on the side with head extended, and was making convulsive movements of the limbs, at intervals trying to rise. When approached he became very nervous and excited, making a great effort to gain his feet, but failing he immediately plunged forward and remained prostrate, being too weak to make a further struggle. With the head extended, mouth open, the tongue protruding and of a blue color; the respiration being hurried and stertorous, this animal seemed in danger of suffocating. It was noticed that in this steer there was a jugular venous pulse, irregular in rate, but continuous, and varying in quantity. The eyes had small opaque areas in the cornea, and the temperature taken in the rectum was over 109 degrees Fahr.

This animal was slaughtered a few hours later and the carcass was condemned by a meat inspector because of extensive bruises, and unfortunately, as the animal had been previously rejected and tagged, a careful examination of the viscera was not made. Several others of this herd approximating the condition of this steer, were slaughtered immediately—and nearly all were condemned for the same cause.

The remainder of the herd were allowed to rest for five days, and they were fed on hay. In that time they again commenced to ruminate, the symptoms of weakness and nervous excitement or depression had disappeared. There remained only the lesions of the eyes—a permanent opacity of the cornea varying from a small ulcer to a bulging staphyloma, discharging pus.

Post-mortem examination of the carcasses when made in the abattoir disclosed no pathological changes in the viscera. The liver, kidneys and spleen were apparently normal in size, color and consistency, but in some the fat adherent to the carcass was disagreeable, a deep yellowish color, greasy to the touch, and in appearance resembling rancid butter.

On inquiry, it was learned that many cattle are seen in the stock yards very weak and poor in condition, and these cattle have an opacity of the cornea and often a swelling of the legs. The history of these animals is always the same. While en

route or in confinement, they have been fed too much cotton seed meal.

The farmer and feeder when questioned says, "Yes, cotton seed is a good feed for fattening cattle, but it often makes them go blind. Their eyes turn white."

I was unable to learn what particular preparation of the seed was fed to the cattle described. How long were they put on this feed? What quantity did they receive per head, and was cotton seed used exclusively or with other food, are all questions that cannot be answered in this paper. They would certainly constitute important data that would throw much light on the condition described.

I believe that in many instances cotton cake meal was fed exclusively. It was substituted for corn and fed to the cattle in the cars. In some of the empty cars there was seen the cotton seed hulls.

It is probable that animals showing acute symptoms from being fed on cotton seed exclusively while in confinement, and where the external fat is a dark yellow color, that we hear the flavor of the beef is not relished; that it is inferior to corn-fed beef. This should be further demonstrated before accepted to be true of all animals fattened on cotton seed. Fatty degeneration and infiltration of the tissues with the excess of oily substance, doubtless occurs to some extent.

The swelling of the limbs, the continued venous pulse, and the hurried respiration, show that the action of the heart is very weak.

It appears difficult, at first, to account for the excessively high temperature in many of these animals. Weak action of the heart and depression of the vaso-motor centres decreases the external circulation and the heat of chemical change in the tissues in excess, because the heat producing cotton seed aliment which is not radiated from the surface but confined in the interior tissues and membranes may explain it.

Micro-organisms that produce fevers, both specific and non-specific in character, are doubtless constantly entering the system, but if the body is in normal health, the resisting vital forces render them passive or inert. When this vitality is lowered and the circulation is very weak, toxine producers immediately become active and fever is soon apparent.

It is known that many animals fed on cotton seed become blind. The acute symptoms are not often seen, as they are of brief duration, but it is believed that they are intimately con-

nected with the lesions of the eye and are produced by the same cause.

An examination of the eyes from a number of these cattle, showed abscesses of the cornea. These abscesses varied in size from a minute point of opacity or small ulceration to a bulging staphyloma occupying the entire area of the cornea and in many cases extending into and breaking down the adjacent interior tissues. From several there was a pustular discharge running down over the face and excoriating the skin. Where there was yet only a small opaque spot, a closer examination disclosed a small ulcer containing small granules like dust or sand appearing as foci. The position of this spot was generally in the centre of the cornea—at a line that would be made by the approximated lids. Where larger opaque areas were seen, they were generally confined to the corneal surface. The smaller abscesses were well circumscribed. There was no inflammation of the surrounding conjunctiva of the eyelids, nor of the cornea and the membrana nictitans. No vascular zone of distended blood vessels at the junction of the cornea and sclera was apparent. In some animals only one eye was affected. This was sufficient to eliminate "Catarrhal Conjunctivitis."

Where the staphyloma occupied all the area of the cornea and bulged from the normal surface in the form of a blister or bladder, it acted as a mechanical obstruction to the closing of the lids. The superior lid was retracted and appeared as a swelling over the uncovered, opaque cornea, and this caused a very painful expression.

A number of these eyes were dissected and the optic nerve and adjacent anterior tissues were found to be normal in size and appearance where the abscesses were confined to the cornea.

It is known that repeated irritation of the digestive tract will cause serious derangement to the nervous system. That it may ultimately result in affecting the cells of the cornea and their nutrition is not improbable.

The cells of the cornea tissue proper contain very many terminal nerve filaments, but it is very poorly supplied with blood vessels and therefore predisposed to loss of sensation. Sensation of the cornea, and particularly the conjunctival layer and the membrana nictitans, is supplied by the terminal nerve filaments of the ophthalmic branch of the fifth pair of cranial nerves, or the trigemini, through its sensitive roots, and in the conjunctiva there are also the corpuscles of Krouse. In the

healthy animal, when these tissues are irritated, the secretion of the lachrymal glands stimulated by reflex action, washes off particles and foreign bodies, and lubricates the corneal surface. By this process of "tearing" traumatic disturbances are prevented, that would be caused when dust and sand are blown against the surface.

In severe depression of the central nervous system, this functional activity is decreased, and in extreme conditions as paralysis, there is an absence of tears as a result of complete anæsthesia of the conjunctiva, especially of the corneal surface. The cornea then appears dry and loses its gloss. When the cornea becomes anæsthetized through any cause, as paralysis of the fifth nerve, dust and foreign particles lodge in the conjunctival surface, lachrymation does not appear to remove, and they become the foci for abscess formation. By extension of the irritation, the entire substance of the cornea becomes organized and appears opaque.

At first there is seen a small ulcer. Pyogenic bacteria enter these minute abrasions. Soon the cornea begins to suppurate and a staphyloma appears. When the abscess once starts, the cornea never recovers its normal transparency.

Sensation of the cornea may be only temporarily lost, yet the effect of traumatism may be sufficient to cause the entrance of micro-organisms. When the suppuration starts, it continues unchecked, even if sensation returns.

Continued irritation of the cotton seed aliment to the mesenteric nerve lining the surface of the intestines is conducted through the sympathetic chain to the spinal cord. By reflex action, through the cardio-inhibitory centres of the medulla, and by the pneumogastric nerve, the action of the heart is inhibited both in force and frequency and the cardiac muscles are relaxed. It has been proved that continuous irritation to the sympathetic nerve will also inhibit the vaso-motor centres in the medulla and cause a decrease in arterial pressure.

Arrest of the circulation and slowing of the blood current along the paths of the cranial nerves, as the trigeminus, and blood stasis in the capillaries at their terminal filaments, may result in a loss of sensation, for sensation is dependent on a high degree of vascularity.

The following description is quoted from the works of two authorities on diseases of the eye and the lesions and conditions are similar to those seen in these cattle.

"Neuro-paralytic keratitis."—"An ulcerated condition of

the cornea, arising when the structure becomes anæsthetic, because it is severed from the influence of the trigemini."

"Cause:—The corneal lesion has been ascribed to a trophic change, to the lessened power of resistance to micro-organisms, which the cornea in its insensitive condition presents to external injury; to the irritation to the fifth nerves and to increased evaporation from the surface of the cornea. Disease of the Gasserian ganglion. Disease of the nuclei of the fifth pair. Anything which cuts off trigeminal influence. Foreign substances remaining undetected upon the insensitive cornea, whose resisting power is weakened through loss of trophic influence."

"Symptoms:—The corneal tissue is comparatively clear beyond and around the central abscess. In periphery, there are secondary foci of infiltration closely connected with the inflammation of the neighboring conjunctiva. The surface of the cornea and conjunctiva is anæsthetic. There may be pain and irritation, or there may be abscess."

De Schweinitz. In "Diseases of the Eye." 2d Edition, page 280.

"When the fifth pair and particularly the part containing fibres of the sympathetic, is divided in animals, in a short time the cornea on that side begins to ulcerate and soon passes on to total destruction. Also when the fifth pair is from any cause paralyzed in man, and particularly when the branch going to the orbicularis muscle is involved at the same time.

"It is a point in dispute, whether the ulceration is due to interference with nutrition from injury to the trophic filaments of the fifth pair, or is simply the result of traumatic injuries, inflicted on the insensitive cornea on account of its constant exposure from paralysis of the orbicularis. Injury to the trophic nerves seriously impairs the resisting power of the corneal tissue, and in some instances is itself sufficient to bring about destructive inflammation."

S. M. Burnett, M. D., "American Text Book Diseases. Diseases Eye, Ear, Nose and Throat. Diseases of the Cornea and Sclera." Washington, D. C.

In this paper it was not intended to detract from the value of cotton seed as a food.

From the number of cattle that have arrived at the stock yards from the South, weak and blind and suffering with acute symptoms, it would appear that many feeders are not familiar with deleterious results from injudicious feeding, and in con-

clusion a short review of what has been learned by experiment may not seem superfluous here.

The best material has been found to be the cakes made from the pressed, hulled seeds. A large part of the hull is a comparatively indigestible substance and they should never be fed exclusively as a substitute for hay. Cattle should always be gradually accustomed to this food and in any form it should never be fed alone, but always dry and mixed with other forms of fodder.

DISCUSSION ON DR. F. C. M'CURDY'S PAPER.

Dr. Stewart: It was rather unfortunate that I was appointed to open the discussion on this paper for the reason that I have not had opportunity to acquire a definite knowledge of the disease as it appears in animals in this section, neither have I had any experience in treating it. I am very much interested in the paper, however, and have seen two or three bunches of cattle suffering from what was said to be over-feeding with cotton seed meal. The paper laid very considerable stress upon the lesions found in the eyes, and I must say the eye lesions are quite prominent and sure to attract attention. The external lesions are similar to those found in contagious ophthalmia of cattle, with this difference: that the opacities in contagious ophthalmia are circular and centrally located on the cornea and enclosed with an inflammatory ring or zone, while in the disease produced by cotton seed the opacities are centrally located but elongated in the direction of the margins of the eyelids and do not have an acute inflammatory zone surrounding them. My observations differ somewhat from that of the author's in that in many cases which I saw there was considerable tearing, the tears producing wet streaks adown the face, commencing at the inner canthus of each eye. It is generally understood in the section where cotton seed meal is largely used that it is one of the best agents with which to fatten cattle, but intelligent feeders are aware that if fed too long the cattle will cease to lay on fat and that serious disturbances of health will develop. If memory serves me correctly, Dr. Cary wrote a short article several years ago relative to the value of cotton seed as food for swine, in which he made the statement that if swine were fed too long on it there would develop a form of scurvy as well as other constitutional disorders.

Dr. Bennett: In this connection I would say that some weeks ago I observed about twenty-three head of cattle that came into Kansas City stock yards. Upon investigation I learned that these cattle came from below the quarantine line,

and had been fed on cotton seed about 110 days, and they were so badly affected that we deemed it necessary to hold them for post-mortem examination. In the meantime two of them had died in the stock yards, and upon taking the temperature of the remaining twenty-one, we found that they varied from 103 to 108 degrees. I also observed this peculiar condition of the eyes some speak about. Some seemed to be entirely blind and most of them had a discharge from the eye that ran down over their face. Some of the cattle had a staggering gait and swelling of the legs, about the same as you observe in a horse after standing in a stable for a time. The examination was continued next day, when the cattle were killed and we found lesions that resembled Texas fever very much. While we did not find characteristic lesions of Texas fever, we found in some instances that the spleen was very much enlarged. I have learned from various feeders that have used cotton seed that from seventy to eighty days is about the proper length of time to feed cattle, as after this time they seem to lose ground, and it is advisable to get them into the market as soon as possible. As far as I am able to learn no investigations have been made with the exception of a few feeding experiments on some calves. Very soon after the above cases I had an opportunity to make a post-mortem examination of two steers that had been fed on cotton seed for about ninety days. They had taken on fat very rapidly, and had become sick very suddenly. They were shipped to Kansas City, where they were killed, but not in the usual manner by knocking them in the head, but stuck them alive. We found enlarged spleens in these two cattle, also enlarged livers; the bile was slightly changed from the normal and the urine was highly colored. This is something I think ought to be investigated, as we see it quite frequently in Kansas City among cattle that have been fed on cotton seed and the animals lose their sight, and we find the internal organs presenting abnormal appearances.

Dr. Wilson: In these 23 head, how many did you condemn?

Dr. Bennett: Seven out of twenty-three. It is claimed by some old feeders that they can tell a cotton seed steak as soon as they see it. The cattle we had there were not bright at all and the seven we had condemned showed the highest temperature. Three of the seven showed marked change in the liver and resembled Texas fever to some extent. In one case we found something similar to a hobnailed liver.

(To be continued.)

OHIO STATE VETERINARY MEDICAL ASSOCIATION.

In accordance with a resolution passed at its last annual meeting, the Ohio State Veterinary Medical Association convened in semi-annual session, in the parlors of the Lima House, Lima, Ohio, July 11, 1899. Meeting was called to order by President Dr. Walter Shaw at 8.15 P. M. His opening address was as follows :

At the semi-annual meeting of this body it has been our custom to indulge the social nature only, but since the convention of the State legislature precedes our next session, it seems to me advisable for us to consider several matters of cardinal importance. The people of our towns and cities are rapidly awaking to a just sense of the peril of health arising from the unwholesome condition of much of their meat and milk supplies. At the same time the farmer, dairyman and stock raiser are beginning to realize the absolute necessity of holding his herd aloof from contagious and infectious diseases for the very good reason that the price and the demand for his produce are dependent upon it. We are not altogether pessimistic, because the health and condition of some of our herds are excellent, but it is just as true that the condition of many others is wholly unsanitary and utterly deplorable. The chief reason for this state of affairs is because the average proprietor does not appreciate the advantage of better physical and sanitary conditions, neither would he know how to ameliorate these conditions were he so disposed. Therefore, information by those who know and who are eminently qualified is the key to this problem, which so urgently presses for solution.

In some particulars our boards of health are required to be scrupulously careful, and yet said boards have no one who is scientifically qualified to examine the products which cause so much disease. Is this not inconsistent? Why so rigid and exacting in some particulars and so inexcusably careless and dilatory in others?

In view of this it behooves us to make a supreme effort to have a veterinarian appointed on every board of health and to be known as the veterinary health officer. In his sphere of the work he should be co-equal in authority with the medical health officer, and he should have direct charge of all dairies, slaughterhouses and whatever is incumbent upon our profession. And without reservation I assert that these officers should be graduated veterinarians and licensed to practice in the State of Ohio. There is no defensible reason for the appointment of unprofes-

sional men (who are without elementary qualifications) to these offices of honor and serious responsibility, because these positions belong to veterinary science by virtue of the profession.

It is due the producer and consumer to be thus informed and to come in possession of the facts, because information must precede agitation and agitation is the precursor of execution. Public justice demands that the State agricultural experimental station, the State board of health and the State live stock commission be represented by a veterinarian, a carefully trained specialist in the things relative to his office. Then the State might feel confident, because protected both against alarming reports utterly without foundation and also against the woful neglect of precautions so necessary to be exercised. With the present appointments and conditions it is humiliating for the men of our profession to be compelled by law to report all cases of contagious and infectious diseases which come under his observation, to the State board of live stock commission, only to have his verdict scrutinized and confirmed or rejected by one who is not conversant with said diseases, nor their symptoms. Surely this is a gross injustice to both the public and the profession. Diseases which affect both man and beast should be investigated by both the medical and veterinary professions. As testimony, let me cite to you a case which forcibly proves the foregoing. It is found in the *London Veterinary Journal*. Scarlet fever became epidemic in Jaaptown, a district of Glasgow; according to the investigation of a physician it was directly traceable to an eruption of the teats of the dairy cows. This verdict was accepted without question by the health officers. In the meantime, Prof. McCall, V. S., also made an investigation with this result, viz.: that the eruptions of the teats of the herd was an affection which existed 24 days before scarlatina developed among any of the consumers. During all this time the customers remained free from the disease, the men employed at the dairy who milked and drank the milk from these cows also remained free from scarlet fever and the dairy man's wife and infant, though inoculated with the virus from the eruptions and using the milk every day, were not affected by the disease. Scarlatina had been prevalent in Neilston District and carried to Jaaptown District. Prof. McCall found no disease like scarlatina affecting the cows and had he been associated with the medical investigator all the unfounded alarm and serious loss to the dairyman would have been avoided.

Stockmen, butchers and dairymen represent great interests

in this country, and we need them, but they should be protected against injustice, loss of any kind and unfair criticisms. And when this end for which we hope is brought about, when tradesmen and physicians no longer hold these positions for which they are so obviously incapacitated, let us see to it that the men in our ranks are thoroughly disciplined, conversant in all things pertaining to our profession. Without delay we should put ourselves in a position to recommend to the Governor a veterinarian for appointment on the State Board of Veterinary Examiners, who will insist on a fair and equal examination for all candidates and issue certificates to those who pass and to no others. Such a recommendation the Governor would be under certain obligations to recognize. In point of fact, the action of the Ohio State Board of Veterinary Examiners could not be regarded as valid, as it is illegally organized because two of its members are graduates from the same institution; neither has it received the confirmation of the Senate. The board is composed of men who are socially in good standing and beyond reproach; notwithstanding, from facts in hand, it has seriously erred in judgment and exceeded the limits of its liberty. There are many reasons why the State veterinary law should be amended so as to require the registration of all who are eligible to practice under it. Such a law would exalt veterinary science to an honored place in the public mind, and to a certain extent eliminate the odium of quackery and the inefficiency of the unprofessional.

A committee of three elected by this association could examine the applicants with reference to legal rights to register and the secretary, or one appointed, could keep the register, but so arranged as not to become a source of revenue to the committee or the keeper.

Among others these are a few of the questions which now confront us and they are of transcendent importance. The most successful solution demands immediate action, and the suggested changes in these conditions, if brought about, will defend the rights and promote the interests of both the public and the veterinary profession.

Roll-call showed the following veterinarians to be present: F. E. Anderson, Findlay; J. H. Blattenburg, Lima; S. E. Bretz, Nevada; J. C. Burneson, Kenton; H. J. Carpenter, Ada; Geo. W. Cliffe, Upper Sandusky; P. A. Dillahunt, Springfield; F. L. Faust, Bluffton; H. Fulstow, Norwalk; W. H. Gribble, Elyria; A. D. Gemmill, Celina; T. B. Hillock, Columbus; R. C.

Hill, West Alexander ; W. C. Holder, Delphos ; W. A. Labron, Xenia ; F. Miller, Fort Recovery ; M. Han, Lima ; J. V. Newton, Toledo ; Walter Shaw, Dayton ; E. R. Stockwell, Mechanicsburg ; Geo. Teeple, Napoleon ; T. W. Johnston, Sydney.

Minutes of the last annual meeting read and approved. Dr. J. V. Newton, who some time ago withdrew from the association, made a personal request for re-admission. The same was unanimously granted. The names of G. R. Teeple, E. R. Stockwell and T. W. Johnston were presented for membership, and the same referred to Drs. Hillock, Bretz and Anderson to report at our next session.

Quite an amount of correspondence was now read ; the principal portion referring to our Board of Veterinary Examiners and their official actions. Our veterinary law is a fairly good one ; but the appointment of the examiners has nearly always been political, no notice being taken of the requests of the profession. The result is, as might be expected, men that one board refuse to pass, the next board, by lowering the standard, grant a certificate, and in some cases (one especially) grant a certificate with only the farce of an examination, and one of the examiners defends his position, saying this was done because the applicant was going to leave the State and practice in Pennsylvania. A lengthy discussion followed the reading of these letters, and much indignation was expressed, several saying they could not see why graduate veterinarians could so lower their dignity when being honored by position. The Secretary called their attention to a clause in the law, wherein the examiners receive no fees, only such as they obtain from applicants, and such a thing was possible as a man loving money more than profession. Dr. Newton suggested that we all use our utmost endeavors to have the Governor appoint to the vacant position a man named by the association, and he offered the following resolution, which was carried without a dissenting vote :

Resolved, That a committee composed of the President, Secretary and Treasurer of this association, suggest a name or names, and present the same to the Governor of this State, with such indorsements as may be necessary, and ask that they be appointed Veterinary Examiners ; and that said committee look carefully into our present veterinary law and report at our next session any beneficial changes which they think could be brought about.

The Secretary now stated that he had been requested by Dr. Blattenburg to invite all present to accept an invitation to a midnight dinner ; and moved that we now adjourn and accept the invitation. This motion was seconded by all present,

and the Chair, thinking it a loss of valuable time to put the motion, declared the meeting adjourned to such place as Dr. Blattenburg should lead us. This was a dangerous decision, as the game of "follow the leader" is not always a safe one, but in this particular case none of us got into any trouble, but all landed in the banquet hall of "The Oak," where we enjoyed the following *ménù*, after which we dispersed to meet again at 8.30 A. M.

	Fried Chicken on Toast	
Green Peas	Sauté of Potatoes	
Sliced Cucumbers	Sliced Tomatoes	
Bread and Butter Squares		
Pickles	Olives	
Tea	Coffee	Milk
Claret Punch		Cigars

WEDNESDAY, JULY 12.

Meeting called to order at 8.30 A. M., President Dr. Shaw in the chair.

Dr. Anderson read a report of a few experiments with anti-toxin * for tetanus. A lengthy discussion followed regarding the use of this, as well as other anti-toxins. Nearly all present thought the high price prevented its general use, especially in a country practice.

Dr. Carpenter read a report of his treatment of fractures.† The discussion following this paper was very interesting and instructive, but plainly showed that the majority present condemned to die all animals (equines) suffering with a fracture of any importance.

Dr. Gribble said that with sorrow he must call the association's attention to the fact that its oldest member, Dr. J. C. Meyer, Sr., had passed away since our last meeting; made a few eulogistic remarks, referring especially to the interest which the deceased always took in his chosen profession and his constant attendance at our sessions. Dr. Hillock stated that Dr. J. W. Wilson, London, Ont., had also died, and while not a member of our association he was so well-known to most of us (having been examiner at the Ontario Veterinary College for twenty years) that he thought it proper we should show our appreciation of his usefulness.

The Chair appointed committees, and the following were presented and adopted:

WHEREAS, Death has removed from our midst our esteemed brother

* Published elsewhere in this issue.

† Will be published in an early issue.

associate, J. C. Meyers, Sr., the oldest member of our association and a member since our organization, and

WHEREAS, By the death of Dr. Meyer the veterinary profession has lost an honorable servant, who was always alive to its best interests, and the Ohio State Veterinary Medical Association a faithful member, whose counsels and general presence will be missed from its sessions, but whose memory will be kept in our thoughts. Therefore, be it

Resolved, That we sincerely mourn his loss as a friend and as a veterinarian, and that we extend to the bereaved wife and family our honest sorrow and condolence, knowing that while resolutions can in no way mitigate sorrow, they may offer consolation; and

Resolved, That a copy of these resolutions be sent to the family, and spread upon the minutes of this association.

WM. H. GRIBBLE,
T. B. HILLOCK,
J. V. NEWTON, *Committee*.

WHEREAS, The Supreme Ruler of the Universe has removed by death our esteemed fellow veterinarian, Dr. J. W. Wilson, of London, Ont., who for many years has officiated as one of the board of examiners of the Ontario Veterinary College. Therefore, be it

Resolved, That in the death of Dr. Wilson the profession loses one of its earnest active members, whose safe and conservative counsel and sterling manly qualities were well known and appreciated by his associates; and his death has caused a vacancy hard to fill; and

Resolved, That to the family we extend our heartfelt sympathy in this their irreparable loss, and direct our Secretary to forward a copy of these resolutions to them; and spread the same as part of the records of this association.

T. B. HILLOCK,
H. FULSTOW,
W. A. LABRON, *Committee*.

The meeting now resolved itself into a general discussion of reporting cases, etc., such as Schmidt's treatment of parturient apoplexy, sanitary inspection, false dourine, azoturia, etc. In this latter, the discussion was most odd, some members saying they dreaded to be called, as nearly all such patients died, while others using the same general line of treatment rarely lost a case. Such is life.

A vote of thanks was tendered the proprietor of the Lima House for the kindly use of the elegant suite of rooms and other courtesies, and a vote of thanks to Dr. Blattenburg for his hospitality, after which the association adjourned to meet in annual session during January, 1900; but before leaving the city the members met at the stable of Dr. Blattenburg, and witnessed some *actual* operations, such as removal of part of tail, median tenotomy, operation to relieve crooked tail, etc.

W. H. GRIBBLE, *Secretary*.

CHICAGO VETERINARY SOCIETY.

The regular monthly meeting of the society was called to order by President Robertson, Thursday, June 8th. In his opening remarks he fittingly voiced the sentiments of the members by calling attention to the timely opportunity presented to awaken the dull interest of the people of this city to the great danger to their health that lies in the milk supplied them, more especially the milk from tuberculous cows. Representatives of the press were present and their assurances were given that they would assist in any effort to correct the evil. The medical societies of the city had expressed a willingness to join us in a concerted movement for the suppression of tuberculosis, the inspection of dairies, testing of cows with tuberculin, and in acquiring whatever legislation that may be necessary to make the work thorough and complete. Public interest is now aroused, and the question presented is, "Who should take the initiative in the movement?" The question has naturally and rightfully devolved upon our society, and let no one be inspired by any selfish motive in furthering the work.

A spirited discussion followed, after which it was resolved, on motion of Dr. E. L. Quitman, that a committee of five be appointed to confer with a like committee representing the medical societies of the city, the joint committees to arrange for a Congress on Tuberculosis, at said congress the subject for consideration to be "Ways and Means for the Suppression of Tuberculosis."

The committee was named as follows: Doctors Joseph Hughes, O. E. Dyson, L. A. Merillat, F. Allen, and R. G. Walker.

Dr. L. A. Merillat presented several subjects for discussion, which he said were brief owing to the number of them, as follows:

DR. MERILLAT'S SUBJECTS FOR DISCUSSION.

Fistulæ or Evidence of Same.—I take this to mean fistulæ of the withers. A fistula, or the tumefaction preceding it, is a serous condition, and is therefore sufficient reason for condemning any horse. A recent trauma must always be looked upon with suspicion, as there is no telling how serious a condition might develop from it. As to the scars showing evidence of a pre-existing fistula of the withers, I would not consider them sufficient reason for condemning a horse unless they are unsightly. Slight scars together with evidence that the condition had been healed for some time might in fairness to all concerned be ac-

ceptable. On the other hand, numerous or large cicatrices, with or without tumefaction, should be considered an unsoundness.

Shoulder Tumors and Galls.—Galls of the shoulders are not to be considered serious unless the conformation of the shoulder is faulty and not suited for the work the animal is required to perform. Conformation of the shoulder is a point never to be overlooked in selecting a horse, especially draft and heavy harness horses. The shoulder should slope evenly from the cartilage of prolongation to the coracoid apophysis and the collar seat should be broad and uninterrupted. Shoulder tumors are serious in that it requires prolonged idleness to cure them, and are therefore to be considered unsound. No horse having them should be accepted as sound. The loose variety occurring as hyperplastic condition of the dermis, while less painful, are particularly unsightly, and are prone to relapse after excision. They are common in mules and in horses in poor flesh. Often animals work without apparent inconvenience for years, but their appearance alone is sufficient reason to condemn the animal.

Capped Elbows or Shoe-Boils are either hygromata or fibromata. The latter constitute an unsoundness, while the former may be so trivial as to scarcely warrant such a decision. A large hygroma inclosed in a thick wall, of course, is serious, and must be dealt with accordingly, and besides it must not be forgotten that these tumors are very prone to recur because of the difficulty of removing the cause.

Scars of Meso-Neurectomy.—The scar in itself can hardly be considered an unsoundness, but the mere fact that the operation had been performed will lead to the examination for a serious disease below if it had not already been discovered. I can hardly conceive how meso-neurectomy could be performed for any condition not readily recognizable in a glance.

Broken Knees, which of course refers to broken knees that have been healed. I would regard with suspicion any animal with this evidence, as it savors very much of chronic stumbling. If, however, one is satisfied the animal is not a chronic stumbler, but sustained the injury by an unavoidable accident, and the scars are not unsightly, there could be no great harm in passing the horse as sound. They are usually the result of an incurable abnormality of the gait, which in many cases renders an otherwise valuable animal practically useless.

Speedy Cuts.—The same principle will apply to speedy cuts. If due to unavoidable accident, and not to faulty conformation

or alteration of normal gait, they should be disposed of according to the appearance of the cicatrix.

Carpitis is the most serious as well as the most common city lameness, and in an examination for soundness is dealt with as a lameness, by prompt condemnation.

Synovitis.—With the exception of acute, circumscribed, traumatic synovitis, which will abort in a few days, all animals thus affected must be condemned. This name suggests a variety of special conditions with locations of equal variance, all of which might be dismissed as very serious conditions from the standpoint of the veterinary examiner.

Sprain of the Superior Carpal Ligament.—A sprain of this structure could not be detected in the absence of lameness.

Mallenders is a chronic eczema, very refractory to medication or any form of treatment, and is therefore serious and an unsoundness.

Serous Abscesses are the result of violence, and, as they respond promptly to treatment, and leave no bad effect, might be overlooked under the proper circumstances.

DISCUSSION.

Dr. Quitman: I did not quite understand the essayist in regard to shoe-boils. Does not a shoe-boil, even if trivial, attract the attention to the animal's feet? The animal will apparently bring pressure on the back parts of the heel, and will probably bend up the heel to relieve pressure. I do not believe I am overdrawing when stating that between 60 and 75 per cent. of all shoe-boils are caused by sore feet.

Dr. Merillat: The querist has evidently misunderstood the paragraph on shoe-boil, so I will re-read it if the Secretary will kindly hand me the manuscript: "*Capped Elbows or Shoe Boils* are either hygromata or fibromata. The latter constitute an unsoundness, while the former may be so trivial as to scarcely warrant such a decision. A large hygroma inclosed in a thick wall is of course serious, and must be dealt with accordingly, and besides it must not be forgotten that these tumors are very prone to recur because of the difficulty of removing the cause." That is to say, all shoe-boils should be considered sufficient reason for condemning a horse except the slightest hygromata. And even these should be accepted reluctantly because of their liability to relapse. *Dr. Quitman's* argument that 75 per cent. of animals having shoe-boils also have sore feet is probably true, because such animals lie down a great deal, and are therefore more susceptible, and besides horses with contracted feet are apt

to be shod with projecting heels, which injure the elbow when the animals are lying down.

Dr. Robertson: Regarding the cause of shoe-boils, the general complaint is that they are due to the mode of shoeing. The writers of our text-books are of the same opinion. I remember when practicing with one of the leading practitioners of this city that he frequently complained that the shoers were the cause of them. Commenting on it in particular, I told him I had seen shoe-boils on horses very nicely shod, on horses that had never been shod, and even on the larger breeds of dogs. Certainly these latter did not get them from poor shoeing. I have in mind a stable of horses that are very frequently afflicted with them, and I have traced the cause to the pavement of cedar blocks and poor bedding.

Dr. Merillat: In regard to fistulæ of the withers: The city veterinarian does not meet with them as frequently as the country practitioner, and as there are members here who have had country experience, let us hear their opinions as to the liability of fistulæ to recur.

Dr. Hughes: Being a city practitioner all my life, I have had comparatively little experience with fistulæ of the withers, but the experience I have had has taught me that fistulæ that are once properly healed do not recur. Most of the country practitioners with whom I have discussed the subject are of the same opinion. The question of importance is the cause. It is the most extraordinary thing to find as many as 5 to 15 cases occurring simultaneously, without any perceptible cause. As to shoe-boils, it is a serious question for the practitioner to decide upon in the examination of horses for soundness. Should a horse, with a scar on the elbow or a small nodule the size of a hickory nut, be passed as sound, knowing their liability to recur? It often bothers me to give a decision in these cases. What is the starting point of shoe-boils? Some of our text-books teach us there is a mucous sac at the point of the elbow. Is there such a muco-synovial sac present? Will some one enlighten us on the subject?

Dr. Merillat: A careful dissection of the point of the hock reveals the existence of a secreting surface, but the same arrangement is not readily found at the elbow.

Dr. Allen: I have some statistics on the use of antitoxin for the prevention of tetanus. The stable in which I experimented lost 43 horses from tetanus during 20 years. During the last year of these twenty-seven died. Since beginning the use of

antitoxin five years ago I have administered 241 doses in a stable of 624 horses, and have not had a single death from tetanus. On the first of last May one of the horses picked up a nail; the teamster did not report, and the horse developed lock-jaw. This was the first case in five years. He had had 10 c.c. of antitoxin about eight weeks previously on account of a nail that he had picked up at that time. The case was a very mild one, which I ascribe to the preventive dose administered two months before.

Dr. Quitman: I would like to know of Dr. Allen whether, in giving antitoxins, he uses antiseptic precautions as well.

Dr. Allen: The foot is pared as usual, and we apply turpentine to the wound, and if there is no lameness the horse is put to work. If lame we put the foot in a creolin bath.

Dr. Quitman: As a rule I use all antiseptic precautions, and think it the safest method. This is of course not always possible.

Dr. Robertson: My experience with tetanus is that the disease only develops when the wound is nearly healed. Dr. Allen's experiments are certainly sufficient recommendation for the antitoxic treatment, and I have myself found it effectual as a prophylactic measure. While I am aware that many cases recover without treatment, I have seen some very good results from antitoxin as a curative agent.

Dr. Merillat: Dr. Allen's statistics demonstrate two things: The first is that tetanus antitoxin is a good preventive for tetanus, and the second that the barn he mentions needs a thorough disinfection. The street is not the common habitat of tetanus germs; it is the floor of stables that abound with them. If wounds were never exposed to the stable floors, it is my opinion there would be fewer cases of tetanus.

Dr. Hughes: I perfectly agree with Dr. Merillat, and would add to his statement that the floors of dark stables are particularly dangerous. I have used 10 c.c. of tetanus antitoxin as a preventive, and have found it gives excellent results. As a curative I think it is utterly useless. I have used it in doses as high as 150 c.c. without effect.

JOS. B. CLANCY, *Secretary.*

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

The fifth semi-annual meeting was held at Faribault on July 13th and 14th, 1899. The first session was called to order at 2

p. m. at the Arlington House, and the following members responded to roll-call: Drs. W. Amos, Owatonna; J. J. Annand, S. D. Brimhall, C. C. Lyford, M. J. Sexton, J. S. Butler, Minneapolis; R. Price, St. Paul; M. H. Reynolds, St. Anthony Park; L. Hay, Faribault; K. J. McKenzie, Northfield; S. H. Ward, St. Cloud; J. A. Hanisch, Zumbrota; Lee, Red Wing; J. N. Gould, Worthington; J. W. Gould, Fairmont.

Reports of Secretary and Treasurer were read and adopted.

President Reynolds then addressed the meeting, speaking lengthily on the subject of the many recent advances made by the profession.

The chairmen of the different committees were then called upon to make their reports, and Dr. Reynolds, as chairman of the Committee on Infectious Diseases, gave a very interesting report on dealing with tuberculosis in this State, stating that the demand for tuberculin has immensely increased within the last year.

When the committees had made their reports and other routine business had been disposed of, the meeting adjourned to L. F. Miller's livery barn, where the following operations were performed by the different members: Trephining for the third molar tooth, Dr. C. C. Lyford; trephining for third upper molar, Dr. J. N. Gould; trephining for third upper molar, Dr. J. G. Annand.

Meeting then adjourned until after supper. On re-assembling the routine business was again taken up. Dr. Lee, of Red Wing, was elected to membership. A number of interesting cases were reported by the different members.

Friday morning was spent in examining some obscure cases of lameness, after which the following operations were performed: Castration of a cryptorchid, Dr. Lee; operation for synovitis in the hind fetlock, Dr. C. C. Lyford; castration of another cryptorchid, Dr. K. J. McKenzie; plantar neurectomy, Dr. C. C. Lyford; same operation, Dr. S. D. Brimhall.

After dinner a short time was devoted to a discussion of association business. A vote of thanks was tendered Dr. Hay for clinical material secured, to Mr. L. F. Miller for his courtesy in supplying suitable quarters for the holding of the clinics, and to the proprietor of the Arlington Hotel for hospitality and courtesy to the members of the association. The meeting then adjourned.

L. HAY, V. S., *Secretary*.

MARYLAND STATE VETERINARY MEDICAL SOCIETY.

The regular tri-monthly meeting was held at Frederick, Maryland, on Tuesday, July 11th, 1899. The morning was spent by the members in enjoying a drive about the suburbs of this beautiful mountain city as the guest of Dr. R. V. Smith.

After dinner at the City Hotel the meeting was held in the same building, and, although the attendance was very small, yet it proved to be an enjoyable and profitable meeting.

Dr. A. W. Clement read a short paper on "Roaring in Horses," in which he gave his results obtained after operation and from medication alone; the latter giving a larger percentage of cures. His treatment is Donovan's solution and sulphate of strychnia in moderate doses three times daily.

Dr. Clement also expatiated on the beneficial results obtained by using the thermocautery with brush effect, claiming unusually good results from repeated *firings* at an affected part instead of one good punch or line firing.

Discussion on general topics of interest to all present ensued, to which each member contributed his quota, one giving his experience in curing acute laminitis with that odoriferous friend of the empiric, oil of sassafras.

Train time having arrived, we regretfully closed our meeting.

WM. H. MARTENET, *Secretary*.

ASSOCIATION OF B. A. I. VETERINARIANS.

The employes of the Bureau of Animal Industry at Indianapolis, Ind., met recently and organized a society for mutual improvement along the lines of work in which they are engaged. The following officers were elected to serve six months: President, Dr. Tait Butler; Vice-President, Dr. T. L. Armstrong; Secretary-Treasurer, Dr. F. T. Dolan; Programme-Committee, Dr. R. W. Tuck, Dr. S. G. Hendren, and Martin Grady.

It is proposed to hold meetings on the first and third Wednesday nights of each month. The first regular meeting will be held October 4th, for which an interesting programme has been prepared.

It is believed that such an organization, embracing all the members of the force at this station, will not only serve as a means of bringing the members closer together socially, but will also serve as a healthy incentive to more systematic and profitable study.

NEWS AND ITEMS.

"ENCLOSED find \$3 for your valuable REVIEW. Consider me one of your regular subscribers."—*Wm. C. Wilson, V. S., Findlay, Ohio.*

ARRANGEMENTS are being made for a joint meeting of the Iowa and Nebraska Associations, to take place Oct. 18 and 19, with a programme of papers and a good big clinic. This does not take the place of Iowa's usual winter meeting.

A VETERINARY MEDICAL REGISTER OF NEW JERSEY is being prepared by Dr. Wm. Herbert Lowe from the official records of the county clerks of the twenty-one counties of the State.

I HAVE TAKEN THE REVIEW since its first publication (No. 1, Vol. 1), and consider it of far greater value to the veterinary profession than all the text books published, as it keeps us entirely up to the times. Have not lost a number since its first publication, and would be entirely lost without it.—*Frank Traver, D. V. S., Bridgeport, Conn.*

THE cry from the market place continually is that exporters cannot find enough good horses to meet their wants. Prices are as high as ever for all that will measure up to the necessary standard, but the common lots are feeling the competition from the large shipments of range horses, which are meeting with considerable favor and are finding a remunerative market abroad. Evidently the brand has lost its "hoodoo" character.—(*Breeder's Gazette.*)

RUSH ORDERS TO BUY HEAVY HORSES FOR GREAT BRITAIN.—*Chicago, Sept. 27.*—Large exports of heavy draft horses to London will be made the latter part of the week. Orders by cable were received at the Union Stock Yards yesterday to buy up all the 1200 pound "gunners" the western market afforded and to make arrangements for immediate shipment. The arrivals are wanted for the South African campaign, and the commission was marked "rush" and "imperative."

DECREASE IN THE NUMBER OF BEEF CATTLE.—According to figures furnished by the Department of Agriculture at Washington the number of beef cattle in the United States has decreased since 1890 from 37,000,000 head to 28,000,000 head. This reduction of 9,000,000 animals has been accompanied by an increase of about 14,000,000 in the country's inhabitants, so that now there are only 365 steers to each 1000 of population,

while in 1890 there were 589 steers to each 1000 of population.

THE ILLINOIS STATE BOARD OF VETERINARY EXAMINERS met at Springfield, Sept. 14, to pass on application for licenses to practice veterinary surgery and medicine. The board recommended the issuance of licenses by the State Board of Live Stock Commissioners to eighty-eight graduated veterinarians and 224 non-graduate practitioners. The board also adopted a list of colleges whose diplomas will be recognized.—(*Breeder's Gazette.*)

ANTITHERMOLINE.—This scientific blending of well-known antiseptics with an inorganic earthy base, with the object of producing an ideal antiphlogistic and antiseptic covering for all manner of raw and inflamed surfaces, was exhibited at the clinics of the A. V. M. A., and sample cans presented to most of those who attended. In New York and surrounding cities it had already been introduced and its merits thoroughly appreciated. An advertisement appears in this month's REVIEW, and the attention of our readers is directed to it, where full particulars as to its constituent parts will be seen.

DEATH OF IROQUOIS.—The famous thoroughbred stallion Iroquois, the only American horse who ever won the English Derby, died at the Belle Meade Stock Farm, Nashville, Tenn., September 19, of chronic nephritis, aged twenty-one years, after an illness of about five weeks. Post-mortem by three reputable veterinarians brought out the fact that one of the kidneys had entirely degenerated. Those who attended the Nashville meeting of the U. S. V. M. A. will remember the great sire, who was exhibited to them on the occasion of the visit to Belle Meade. General Jackson intends to remove the hoofs and have them made into cups, finely mounted.

GLANDERS IN TRANSPORT MULES.—It is reported from Leavenworth that glanders has been discovered among the Government mules and horses at Fort Leavenworth intended for service in the Philippines. Three hundred mules and horses are said to be afflicted and eighteen mules were shot on one day. A wholesale slaughter is imminent. Veterinary surgeons are at work and the animals will be inoculated with a new preparation. There is a scarcity of the kind of mules the Government wants. The quartermaster will immediately advertise for bids to duplicate the animals that are shot. This will delay the shipment of these animals to the Philippines. They were to have been sent in a few days.—(*Breeder's Gazette.*)

HYPODERMIC TABLETS.—The employment of hypodermic medication in the treatment of animals is one of the most important steps in the advancement of veterinary practice. Buntin Drug Co., of Terre Haute, Ind., are the pioneers in the introduction and preparation of hypodermic tablets for the use of veterinarians. Their tablets contain only the medicament with chemically pure inert sugar, which preserves the activity of the drug, preventing deterioration, to which many of the most valuable alkaloids are inclined, when uncombined and subjected to even slight atmospheric exposure. Buntin Drug Co. is the only house in the world making a specialty of this line of laboratory products, and their goods are accepted standards of excellence by the veterinary medical profession in America, Canada, England and Australia. Their price and references lists, with doses, will be mailed to veterinarians upon application.

A LIVE STATE ASSOCIATION FOR NEW JERSEY.—We are informed that a determined effort is being made to unite the various veterinary factions in New Jersey into one strong State organization. Certainly this is a most intelligent view to take of the situation, for such an association is not only of the greatest benefit to the members from an educational point of view, but it is strong to protect the profession from the attacks upon statute laws, and as a power in securing other beneficial enactments. The Veterinary Medical Association of New Jersey is to be made the nucleus about which it is to gather, and at its meeting in Newark a short time ago it was augmented by a number of new members, among them that hardworking and enthusiastic veterinarian, Dr. Wm. Herbert Lowe, of Paterson. We sincerely trust that Dr. Lowe may have the co-operation of the profession of the State in his great undertaking, and, laying aside all petty jealousies, all should work for "the cause."

TO INSPECT HORSE MEAT.—A large quantity of horse meat is imported into Norway from America and England. It is cut into pieces, salted a little and packed in barrels. Much of it is used in sausage factories. Fearing that the horse meat sent from this country was not properly inspected, and to ascertain whether it comes from sick or dead horses, the matter was called officially to the attention of the Department of Agriculture. As the meat is cut in small pieces it was suggested that a barrel could contain both good and bad. The department has replied that horse meat is entitled to the same inspection in this country as that of other animals; that if the Government of

Norway is suspicious of the character of the horse meat it might require a certificate of inspection from our inspectors to accompany each lot. The certificate would establish to a certainty that the meat was the product of horses in good condition as to health and that it was sound and wholesome at the time of inspection. From the correspondence that has passed it seems reasonable to expect Norway to require inspection certificates. —(*Breeder's Gazette.*)

TO TAKE CHARGE OF PRACTICE.

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L. D. BLANCHARD, Canton, Ohio.

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In making up my REVIEWS to be bound I am short of the following numbers: Vol. XIII, July, September, October (1889). As I cannot obtain these from the publishers, I will give the regular rates or a slight advance, or will exchange any of the following which are duplicated in my file: Vol. XIV, October (1890); Vol. XIX, February, March, and April (1896). Address ROBERT W. ELLIS, D. V. S., 509 W. 152d Street, New York City.

AMERICAN VETERINARY REVIEW.

NOVEMBER, 1899.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

PASSING OF THE AUTOMOBILE.

But a few months ago that champion of horseless vehicles, the New York *Herald*, could see nothing in the line of local transportation, whether for business or pleasure, which had not discarded the untamed, filthy, and altogether abominable equine, and in his stead adopted the electric, compressed air, or gasoline motor. Every page of its Sunday edition would show an illustration of something in their interest. Every individual who for notoriety or advertising purposes secured one of the machines was reproduced life-size, and rules and regulations were set forth intended to give popular instruction for their manipulation, so sure was the paper that they were to at once leap into general use; and, as is its custom and policy upon all subjects, political or otherwise, it wished to be on the winning side, and so perched itself on the fence for the purpose of flopping in either direction. Believing that the automobile side was the proper one to flop on, it did so in no uncertain manner, never losing an opportunity, not only to advance the interests of the new machine, but to deal blows of derision upon the horse, whose place is so firmly entrenched in the hearts of men that nothing will ever displace him. According to its optimistic predictions, in so short a time as this date there were to be auto-trucks, hansom cabs, coupés, coaches, victorias, stages, light runabouts, and every other manner of popular vehicle that had

been drawn by horses since the origin of man, running through our streets and roads, while camera fiends would be standing on the corners waiting an opportunity to "snap" any old soliped that might dare to remain as a reminder of the dark ages when our citizens were forced to make use of such a creature. Horse-breeders, horse-shoers, harness makers, veterinarians, and all others deriving a livelihood in one capacity or another from the horse, must either seek other employment or "get off of the earth." To show the American public the correctness of its judgment of the motive power of the future, and to thoroughly establish its right to priority in the "discovery," it undertook the management of a grand spectacular transcontinental race against time, heralding the event days ahead, and detailing the preparations with an accuracy foreign to its usual practices. Every movement of the wonderful pair who were to undertake the history-making journey was chronicled, and on the day of their departure a vast crowd assembled around the *Herald* building to bid them Godspeed and a safe trip to San Francisco, their objective point, being due in front of a sensational newspaper office in that metropolis on a given date, in custody of a letter of introduction from the alien publisher of the *Herald*, who had made extensive arrangements to receive hourly bulletins of the trip across the continent. No other event, save the recent reception to Admiral Dewey or the stirring events of the Spanish-American war, bore any such significance in the opinion of the great exponent of automobilism.

Although we are in possession of all the details of that memorable comedy excursion, we will not occupy valuable space in recounting them, especially since we gave a somewhat accurate account of it a few months ago, copied from the San Francisco *Examiner*. It will serve the purpose of this article if we say that through a series of most annoying accidents, the tourists were just twenty-two days in reaching the western border of the Empire State, where repair shops were thickly located and the home factory in close call. With such experiences as they had gone through, and looking with dismay upon the

vast prairies of the unpeopled western deserts, their hearts failed them and they wisely abandoned the Quixotic project at Cleveland, Ohio. The inspirator of the farce, however, did not have sufficient courtesy or courage to announce the discontinuance of the scheme, and the public were left in ignorance of the fate of the martyrs. To many, no doubt, the announcement here made will be their first knowledge of the outcome of the attempt.

And what has become of the auto-truck syndicate that would "in a very short time have three hundred in active operation in the streets of New York"? Where are all the truckmen whose business this syndicate bought up, in order that the poor horsemen might not be left out in the cold altogether? Where are the various companies incorporated with capitals ranging from \$10,000,000 to \$100,000,000, whose factories were already established and who could not turn out the orders fast enough? If they are turning out automobiles so rapidly where are the machines going? The only place that we can see is that they are going out of use. For every six that bumped along through the streets of Gotham a year or even six months ago, there is not one now. And the fashionable set who were said to have seized upon the fad at Newport last summer are sitting behind their gayly caparisoned equines, the only stylish turnout that there is. What's the matter with the automobile? Has its power given out altogether, as is so frequently the case with the individual machine? And what of the *Herald*? Not a word for the automobile, and only praise for the horse. Did it think that it had flopped to the wrong side of the fence, and is it endeavoring to flop back again?

Do the horsemen of America appreciate the fact that the *Herald* is not their friend, and are they willing to throw their dollars into the pockets of its Parisian publisher, who will use them to kite automobile stock when the times are more propitious?

No; the automobile has seen all the popularity it will ever enjoy, unless inventive genius shall produce something entirely different from anything which has yet appeared.

Meantime the horse will do business at the old stand, and be glad to see his true friends.

RECENT ASSOCIATION MEETINGS.

The REVIEW devoted the major portion of its October number to reports of association meetings, international, national, state, and local, and to run over the fifty-two pages of "Society Meetings" shows a very active state of the profession. The great outpouring of veterinarians at the meetings in New York City was most gratifying, and it gave an impetus to interest in associational work. The papers were of a high order, many involving a large amount of original research, and the only regrettable feature was that so many had to be read by title and referred to the Publication Committee. While they in this form make valuable additions to American veterinary literature, many points of interest would be brought out in a discussion from such an assemblage of representative professional men. The REVIEW is always pleased to receive the reports of veterinary association meetings, and will continue to give them all the prominence that is possible through this medium.

ORIGINAL ARTICLES.

SOME THEORIES AND EXPERIMENTS IN ANTISEPSIS.*

BY PIERRE A. FISH, N. Y. STATE VETERINARY COLLEGE, ITHACA, N. Y.

Introduction.—Progress in all lines of science involves change. In the use of antiseptics there is, perhaps, as much or more conservatism shown toward the introduction of new agents, than in most other scientific branches. Agents which have been in use for a long time, with quite uniformly good results, are hard to displace. Operators, who have been accustomed to the technique and with a long experience of a particular antiseptic, are loath to change.

* The substance of this paper was presented at the meeting of the State Veterinary Society in New York, 1898.

Before the "germ theory" was accepted, septic surgery was the established practice. Micro-organisms were introduced into the wounds by unclean instruments or dirty surroundings, and the success of the operation was dependent largely upon the vigor and vitality of the patient. Statistics show that the mortality during this period was very great. Operations involving the opening of any of the body cavities were almost uniformly fatal, and a distinguished English surgeon is quoted as saying that "ovariotomy is nothing less than murder and any person undertaking such an operation ought to be hanged."

With the introduction of antiseptic surgery by Sir Joseph Lister, the aim was to make the operating instruments thoroughly clean and to prevent any activity of the organisms that might enter the wound. This system was somewhat more elaborate than that subsequently practised, in that he used an antiseptic spray to cover the field of operation and even the operator, to guard against the ingress of pathogenic germs. If the spray had not been used, it is probable that surgery would not stand upon the plane that it does to-day; for during those earlier periods the operating rooms were not scrupulously clean and the danger of contamination or infection was consequently much greater than at the present time. Lister introduced carbolic acid as an antiseptic, and although it is not now rated among the most efficient, its use is, nevertheless quite extensive.

Aseptic surgery is the latter-day ideal, and more or less successfully accomplished. Its aim is to guard the wound from the introduction of pathogenic organisms, by conducting the operation in quarters as free as possible from bacteria.

In septic surgery the organisms had perfect freedom, there was no restraint against their activity, save such as the tissues of the patient might oppose. In antiseptic surgery, the aim was, not particularly, to prevent the entrance of the organisms but to inhibit their activity after having once lodged in the wound. Aseptic surgery seeks to keep the germs away from the wounds and to cause healing by the "first intention." Veterinary surgery, for the most part, is antiseptic surgery. It

is only the exception that aseptic conditions are realized. The operating rooms and attendants are not, as a rule, comparable to those utilized in human surgery, nor is the patient as easily managed or taken care of.

Theories.—Comprehensive as is our knowledge, to day, of bacteriology, there are still some points pertaining to the structure of the bacteria themselves and their action upon living tissues, concerning which further knowledge would be of very material assistance in attacking these micro-organisms from an antiseptic standpoint.

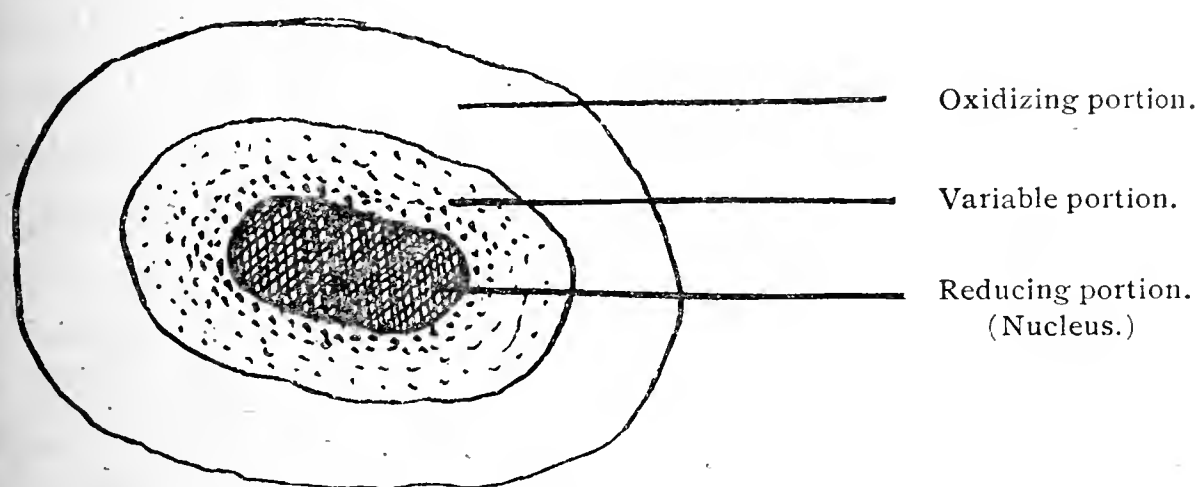
We may conceive of an ideal antiseptic as an agent which has the property of inhibiting or destroying bacteria without injury to the somatic tissues. The direct question may, with justice, be asked at the present time. Do antiseptics bring about their beneficial effects by direct action upon the micro-organisms or do they act upon the body tissues, with which they come in contact, in such a way that these organisms can no longer obtain their needful supply of nutriment from the transformed tissues?

We have evidence that the protoplasmic body of, at least, some of the bacteria is protected by an outer coating of cellulose, a substance which is acted upon, practically not at all, except by some of the strongest reagents. There is evidence, also, that certain of these organisms have the power of secreting from their bodies, material in the form of toxins, which act deleteriously upon the surrounding tissues; but which, during the period of secretion, it would seem, must serve for the protection of the micro-organism.

Again the question of osmosis may be a factor. Do certain reagents have the power of establishing an unequal density in the medium around and within the body of the micro-organism, so that enough moisture may be withdrawn from it to render it inert; or may the reverse be true, that a surfeit of moisture is taken into the body of the bacterium? These would seem to be among the fundamental problems concerned in a study of antiseptics.

The matter of oxidation is, by no means, an unimportant part of the subject. Certain of the organisms are anaerobic and cannot live in the presence of oxygen; others are aerobic and require oxygen in order to exist, and a third class, the facultative organisms may live either in the presence or absence of oxygen. Antiseptics which cause any change with respect to the amount of oxygen supplied to the organisms, or to the tissues surrounding them, act upon, at least, one of the above classes.

The proper oxidation of the somatic cells undoubtedly has much to do with protecting the body from the harmful effects of certain germs. If, for example, a cell be surrounded by a fluid containing oxygen, the external portion of the cell will get the most oxygen, and will become more or less oxidized, while in the region of the centre of the cell a reducing power will be exerted and oxygen will be readily taken up from the external layer. From this condition of affairs, we may differentiate the central portion of the cell as chiefly of a reducing character and the external portion of the cell as chiefly of an oxidizing nature; between these two fairly well differentiated layers, we may distinguish an intermediate layer partaking somewhat of the characters of the other two; a portion of the time it is oxidizing in function and a portion of the time reducing.



MODIFIED FROM LANDER BRUNTON.

The limiting membrane of the cell, or the medium surrounding the cell, influences the degree of oxidation. A thick

cell wall naturally retards the passage of oxygen. If the cell be surrounded by a layer of some inert substance oxidation is also restrained. The closer the contact of the protoplasm of the cell with the fluid containing the oxygen, the more easily will oxidation occur.

The conditions just described for the somatic cell would seem to hold with equal force for certain of the bacteria. With these organisms we get, perhaps, a greater variety of limiting cell membranes than in the cells of the tissues. Differences in thickness, and perhaps of structure, so that with some at least, oxidation of the protoplasmic substance of the organism is not easily effected. Moreover the medium surrounding the germs may vary greatly with respect to its oxygen-carrying power.

Guinard (3a) cites three principal modes of action of antiseptics: 1st. The action upon the germs themselves. 2d. The action upon the poisons, toxins or soluble products secreted by the germs. 3d. By modifying the medium upon which they grow, *i. e.*, action upon the tissues or organic liquids.

Under the first heading, antiseptics may act: as an immediate deadly poison or as an obstacle to the development of the microbes, or preventing the secretion of their toxins. The antiseptic may kill the micro-organism by oxidation or coagulation of its protoplasm with the formation of an insoluble compound where life cannot be restored (Duclaux). The antiseptic may manifest only a paralyzing action which hinders the development of the germs. This action does not, ordinarily, prevent the organisms from inhabiting a new place and becoming active there, they have been rendered only temporarily inert (Duclaux).

Furthermore when an antiseptic is not able to suspend the multiplication of a micro-organism, it is often capable of profoundly modifying its morphology, the bacillus pyocyaneus takes on different forms, often unrecognizable, in contact with antiseptics (Charrin and Guignard). Cultivated in bouillon acidulated with tartaric acid the *Micrococcus prodigiosus* takes a bacillus-like form (Wasserzug).

The addition of bichromate of potassium, to bouillon containing the bacteria of anthrax (Charbon), prevents the formation of spores, and these asporogenous bacilli, thus deprived of their essential characters, lose at the same time, all resistance to causes of destruction (Chamberland and Roux). Again, when an antiseptic neither modifies the vitality, nor the evolution, nor the morphological type of a micro-organism, it may prevent the elaboration of its habitual secretions. The chromogenic bacilli are good illustrations, for it is not difficult to suppress their colored secretions by using the proper antiseptics.

The bacillus pyocyaneus, appropriately named on account of its secreting a blue coloring material which tinges pus and the media in which it grows, is killed by a solution of sublimate 1:1-100 or in contact with carbolic acid 14-100; but weaker solutions of these substances, sublimate 0.85-100 or carbolic acid 9-100 do not have a destructive action, but can prevent the secretion of their coloring material (Wasserzug).

In contact with caffeine, theobromine, or eserine, the same micro-organism loses its chromogenic function. It is only modified, for when quinine or quinidine is used the product secreted is yellow instead of blue (Cadiac).

Under the second heading, or action upon toxins, Guinard states that an agent deserves the name of an antiseptic, although it may have no action upon the micro-organisms nor their secretory functions, if it has the power of chemically neutralizing the bacterial poisons, the action is practically an antidotal one between the toxin and antiseptic. It is Guinard's view that the efficacy of the different antitoxin serums is explained in this way.

With regard to the third method, we encounter a more indirect action than in either of the others. The antiseptic has no immediate action upon the micro-organism nor its functions, nor its products of secretion, but modifies the medium in which it grows in such a way that its evolution and its vitality are attenuated. A great number of agents belonging to the group of disinfectants, have the power of coagulating albumin and

causes a kind of tanning with extraction of water, which constricts the tissues and restrains putrefaction. Upon the same principle they form coagulums in which the organisms are retained, or which protect the surfaces against ulterior contaminations. Some agents used as antiseptics act only as desiccators and prevent development in this manner. When gelatin, covered with dermatol, is inoculated with bacillus coli, bacillus pyocyaneus or pyogenic bacteria, the growth of the cultures is impeded, due to the desiccating action of the agent which dries the surface of the gelatin (Cadéac and Guinard). The conclusion reached is that dermatol is not a true microbicide, but hinders the evolution of the germs by modifying the medium upon which they grow. The feeble changes in the chemical composition of a medium, resulting from the presence of an antiseptic even in very small amount, can prevent the microbes from performing their function and restrains their evolution.

Guinard asks why certain medicinal agents may not excite the cellular elements in such a way as to cause a defensive action, either by causing a bactericidal action of the medium, or by an elaboration of organic secretions, which may neutralize the toxic substances. He believes that such an hypothesis will assist in explaining the curative action of antitoxic serum and in serum therapy.

Experiments.—The following experiments have differed from most others, in that no especial attention has been devoted to determining the exact death point of the organisms; but to put artificial conditions upon as natural a basis as possible, as found in open wounds. The experiments were confined entirely to such organisms as are usually found in such wounds. In the two cases examined (one in 1897 and the other in 1898), the microscope showed numerous micrococci and some bacilli. In order to simulate the conditions of a wound, plates of gelatin and in some cases, of agar were prepared. A gash was cut in the medium and the organisms planted by drawing two loops of the culture prepared from the wound, through it. The dry

antiseptic was then dusted into the gash and around its edges and developments awaited.

For the liquid antiseptics, a certain amount of the wound culture was inoculated into a tube of bouillon and a definite amount of the antiseptic added to the tube, a control tube being used with every set of experiments.

With the dry experiments two grains (0.13 gram) of the antiseptic were used, and every precaution taken against contamination or mixing of the powders. The glass scale pan was covered with strong alcohol and then ignited, the burning of the alcohol serving to still farther sterilize as well as to dry the pan. The powder was then removed from the container with a sterilized scalpel and dusted over the infected medium.

With the liquid antiseptics a one cubic centimeter pipette was used. The pipette was of such a size that one drop from it was found to equal 1-25th of a cubic centimeter. The tubes of bouillon were inoculated with one drop or 1-25 cc. of the wound culture. The pipette was then sterilized by washing it out in strong alcohol and then holding it over the flame until thoroughly sterile; then 1-2 cc of the antiseptic was placed in the inoculated tubes.

The first series of experiments was performed during July and August 1897. The material was obtained from a horse which had been operated upon for roaring. Tracheotomy had been performed and there were evidences of "Inhalation Pneumonia." A small amount of pus was removed from the orifice made in the trachea.

In a cover-glass preparation of the pus, micrococci were the only organisms discernible. Some of the pus was put into a tube of bouillon, and from this tube the other tubes and plates, used in the experiments, were inoculated. A strong putrefactive odor was noted in the original tube on the fourth day. Plate cultures were also made from the pus, and cover-glass preparations stained with methylen blue and carbol fuchsin, showed micrococci and short and long bacilli. The tube and plate cultures showed a vigorous growth of the organisms.

In order to determine whether in this particular case, the effects might be due to the products of the bacteria, or to the organisms themselves, or both, one of the bouillon cultures was filtered through a porcelain tube in order to remove the organisms. On July 27, 1897, eight minims of the filtrate were subcutaneously injected into a rabbit, with a sterilized hypodermic syringe. The animal was carefully observed for a number of days but no injurious effects were detected. On July 31, another rabbit received a subcutaneous injection of the unfiltered pus culture. A slight swelling was noticed at the point of inoculation the next day. There was no increase for a day or two, but seven days after the inoculation, the swelling had increased considerably, until on the tenth day the swelled area was approximately an inch and a quarter long by three-fourths of an inch wide. The animal seemed healthy in all other respects and the swelling gradually disappeared.

The solubility of the dry antiseptic, it would seem, must exert some importance with regard to its efficiency. If insoluble and not decomposed by the heat of the body into different compounds, the antiseptic has, probably, no greater action than a dessicating or protecting layer to the wound. A soluble antiseptic would seem to have a greater relative efficiency, because its action may be two-fold. It may act directly upon the organisms and, at the same time, upon the somatic tissues. Its absorption and stimulation of the parts may thus aid in the process of repair.

Among the preparations experimented with are the following: Dry preparations—Acetanilid, Aristol, Glutol, Iodoform, Salol, Thioform, and Xeroform.

Fluid preparations—Carbolic acid, Creolin, Formalin, Hydrogen dioxide, Lysol, Mercuric chloride, Pyoktanin, Trikresol.

Dry Preparations.—Acetanilid.—This agent is soluble in water to the extent of 1 part in 194. Two grains of this substance were used in a tube of bouillon with 1/25 cc. of the pus culture, July 31, 1897. No growth on August 1, although the control tube showed growth. On Aug. 2, a slight cloudiness

appeared in the acetanilid tube. The cloudiness did not increase although observed until Aug. 5. A gelatin plate culture prepared as previously described, showed no growth for several days.

Aristol.—This substance is soluble in ether, chloroform, oils and slowly in alcohol and is insoluble in water. In the test-tube experiment, the growth was not checked. In the plate experiment growth was apparent within twelve hours and kept increasing.

Glutol.—This substance is composed of gelatin impregnated with formalin. The theory is that when applied to a wound the warmth of the body softens the gelatin and liberates the formalin, which may thus come in contact with or even penetrate the tissues of the wound, rendering them antiseptic. In the test-tube experiment a very noticeable growth of the germs was apparent upon the day following the inoculation of the tube. In the plate experiments two sets of plates were used, one set of agar and one of gelatin. The agar plates were placed in the incubator, and growth was restrained by the glutol for about 48 hours. The gelatin plate showed no signs of growth until the second day after inoculation.

Iodoform.—A small amount of this agent was taken from the stock-bottle and placed in a tube of bouillon to test its own purity from germs. There was no growth after two days. The tube experiment in this case, differs from the others, in that a larger proportion of the culture was introduced into the tube, as follows: 1/5th cc. of the pus culture was used and one grain of iodoform. In two tubes inoculated with these proportions, growth occurred within fifteen hours. In the plate cultures, the gelatin liquefied on the day following the inoculation but there did not appear to be growth in colonies as in the other plates. The gelatin remained quite clear but liquid.

Rideal (4)—in discussing iodoform states that the power of iodoform has recently been much disputed. While the *Lancet* asserts that it is a much better antiseptic than most other substances which are used for the same purpose, and is of much

more value than carbolic solution; while Sir Joseph Lister found it of the highest value for wounds, Messrs. Hehn and Rosviny maintain that in a long series of experiments they have proved that it is not antiseptic at all, but only a desiccant. "Sterilized iodoform jelly, when inoculated with micro-organisms, was found to be full of them, all growing freely, on the third day." Riehl asserts that "as a parasiticide it is feeble and inert, but it dries the surface of wounds." Miguel in his table marks it as very strongly antiseptic; but Bouillat found that 10% of iodoform did not arrest putrefactive changes in extract of pancreas. The truth is, as pointed out by Behring, that it produces its undoubtedly beneficial effects, not by acting directly on bacteria, but by inducing chemical changes in their toxic products. He has ascertained that some of these toxins are altered chemically by iodoform and rendered harmless.

Salol.—This agent is insoluble in water. The plate experiments showed that growth occurred about as quickly with this agent as in the control plate.

Thioform (bismuth dithio-salicylate).—The plate experiments showed that growth was delayed for a day and that liquefaction occurred very slowly.

Xeroform (tribromphenol-bismuth).—The plate experiments with this substance were quite successful, as after a week's time there was but little liquefaction, although a number of colonies had appeared. Young (8) referring to Heuss of Zurich quotes that xeroform is not poisonous; that it is almost completely odorless and tasteless; that it is entirely non-irritating even to diseased mucous membranes; that it has a powerful antiseptic action; and that it is well adapted as an intestinal antiseptic and in the treatment of wounds. In the treatment of wounds it favors epithelial growth and alleviates pain. On account of the lightness of the powder, a smaller volume than that of iodoform suffices to cover surfaces. He thinks that he is justified in asserting that in xeroform we possess an antiseptic which stands next to iodoform, and that in some respects it has marked advantages over iodoform.

Fluid Preparations.—Carbolic acid.—This agent was used in 2.5 per cent. and 5 per cent. solutions. 1–25 cc. of pus culture, and one cubic centimeter of the antiseptic being inoculated into the tubes. After twenty-four hours there appeared to be a slight turbidity in the 2.5 per cent. tubes, but after nine days there was no appearance of gain. In the 5 per cent. tubes there was no growth whatever. The experiments were repeated in July, 1898, with a 2 per cent. solution. A very slight turbidity appeared, but did not extend.

Creolin.—This agent was used in a one per cent. solution. The proportions of the pus culture and antiseptic were the same throughout all of the experiments. The addition of the creolin to the tube caused an opacity, which rendered it difficult to distinguish any growth. In such cases the tubes were put in the incubator over night, and a loop from these tubes was introduced into a fresh tube; if growth had occurred in the former it would, in due time, appear in the latter, and there would be no opacity to obscure detection of the new growth. Fresh tubes inoculated from the creolin tubes showed growth upon the fol-

Organism.	Proportion of Formaldehyde inhibiting growth.	Proportion allowing some growth.	Remarks.
Staphylococcus pyogenes aureus.	1–5000	1–10000	Growth poor—1–10000, and much delayed 1–20000.
Bacillus typhosus.	1–15000	1–20000	Very scanty growth.
Bacillus coli communis.	1–7000	1–10000	After 72 hours incubation.
Bacillus anthracis..	1–15000	1–20000	Scanty growth on 6th day.
Spirillum cholerae..	1–20000	. . . .	. . . . .
Bacillus mallei . .	1–20000	. . . .	. . . . .
Bacillus pyocaneus.	1–7000	1–10000	On the 3d day.
Bacillus lacticus . .	1–20000	. . . .	. . . . .
Bacillus butyricus (Hueppe).	1–20000	. . . .	. . . . .
Micrococcus prodigiosus.	1–20000	. . . .	. . . . .

lowing day. The experiment was repeated in July, 1898, with a two per cent. solution from another bottle of creolin with the result that no growth developed.

Formalin.—This agent was used in the proportion of 1-1000 and after four days the tube remained as clear as when sterilized. The experiment was repeated in 1898 with the same results.

Slater and Rideal's re-examination, in which formaldehyde was added to tubes of *bouillon* in proportions varying from 1 in 1000 to 1 in 20,000, the tubes then inoculated with vigorous cultures of different micro-organisms, and placed in an incubator showed the results for inhibitory action, as on preceding page.

It is to be noticed that even when the proportion is too small to prevent growth, the cultures then obtained are scanty, and their development is long postponed. The fact that growth does not take place in the *bouillon* is not proof that the microbe has not been killed. Thus *bacillus mallei* which showed no growth after four days incubation in a 1-15000 strength, when transferred to a fresh nutrient solution gave rise to a culture normal in all respects, except in requiring an unusually long time to develop.

Hydrogen Dioxide.—This agent was used pure and also in the proportion of 1-500. With the former no growth appeared after seven days, but with the latter, growth developed within 18 hours.

Lysol.—A 1% solution was used. Growth appeared within twenty-four hours. The experiment was repeated in 1898, with a 2% solution from another bottle, and no growth appeared.

Mercuric Chloride.—Proportions of 1-1000 were used, and growth appeared in the lower half of the tube, upon the following day. The experiment was repeated in 1898 and the tubes remained clear. Rideal (4) reports that Klein considers mercuric chloride an efficient germicide, but maintains that Koch and others have overrated it. In 1885 Blyth conducted a series of experiments in which he treated anthrax spores with 1 in 1000 solution of mercuric chloride as others had done,

when he noticed that the bacteria were apparently killed and the spores ceased to develop ; but on then inoculating guinea pigs with the apparently sterilized infusion, anthrax rapidly appeared, the animals died and the blood was swarming with the *bacillus anthracis*. He concludes that a solution of 1-1000, although it kills the non-spore-bearing organisms, only stupefies and does not destroy the spores of *bacillus anthracis*. Dr. Woodhead explains Klein's result as due to the precipitation of the mercuric chloride by the albumen present, "which gave a coating or pellicle of albuminate of mercury round the spores, protecting them from further action until they were introduced into the blood of the animals, when the excess of albumen redissolved the pellicle and set the organism free to flourish in its new surroundings." Koch has repeated his experiments and somewhat modified his earlier conclusions. He still affirms that mercuric salts, especially the chloride, are most valuable. "For a ship's bilge, where a 5% solution of carbolic acid must be left for forty-eight hours, a 1-1000 mercuric chloride solution only required a few minutes." He admits that "there is on the other hand reason for doubting the efficiency of this salt, for though anthrax spores subjected to a 1 in 20,000 solution for ten minutes and then washed in alcohol gave no growth in nutrient gelatine, silk threads infected with the spores and then exposed for ten minutes to a 1 in 20,000 or even 1 in 10,000 solution proved fatal to mice." Herroun considers that the value of this substance as an antiseptic has been very much overrated, as he has cultivated ordinary septic bacteria in albuminous filtrates containing 1 in 20,000 of mercuric chloride. "It is precipitated by albumens if used in greater strength, and is readily converted by the sulphur of all bodies into insoluble mercuric sulphide which is practically inert." It may be remarked also that mercuric chloride is precipitated by any alkaline solution such as ammonia, etc. Laplace in a series of experiments found that 5 cc. of blood serum was sufficient to precipitate the mercury from 5 cc. of a solution of the strength of 1 in 1000, but that by adding hydrochloric acid in the pro-

portion of 5 in 1000 the formation of the precipitate is prevented.

Pyoktanin.—Also known as methyl violet, and frequently confused with methylen blue and methyl blue. This substance was used in solution, 1-1000. The blue color interfered with the detection of growth. Fresh tubes inoculated from the pyoktanin remained clear. Young (8) states that Dr. Stilling's opinion of anilin as a local antiseptic, as translated by Dr. Stevenson, is that the local application of a 1 in 1000 solution of methyl violet does not cause irritation. He says that in treating hundreds of patients with it, this has invariably been his experience. He has also found its use in surgical practice quite free from toxic symptoms. The irritating effects observed by some investigators and practitioners, he believes due to impurities such as chloride of zinc, arsenic, and copper sulphate. The results of his experiments indicate that methyl violet is about three times as strong as sublimate in its action on the anthrax bacillus, and quite as effectual as sublimate in its action on staphylococcus pyogenes aureus; that it is a perfectly non-poisonous substance; that, in consequence of this, it is immaterial how strong the solutions may be, even up to the use of the pure substance itself; that it does not coagulate albumen; and that it possesses an extraordinary power of diffusion, penetrating into the eye like atropin. The favorable report of Stilling led many others to test for themselves the antiseptic value of the anilin colors. Petersen, of St. Petersburg, used it in many cases both in hospital and private practice with excellent results. Tessler, of Munich, found it to be a very efficient antiseptic in the surgical clinic of the university, used as a 1 in 1000 solution and as a gauze. Bacteriological experiments confirmed his conclusions as to its bactericide value. Garre and Troje, however, report less certain clinical and antiseptic results.

Of the anilin dyes, malachite green is, according to Behring, the most effective, anthrax and cholera bacilli being destroyed with 1 in 25,000; diphtheria bacilli with 1 in 8000, and glanders and typhoid bacillus with 1 in 300.

Baer has also experimented with malachite green and his results confirm those of Behring in showing that malachite green is more actively germicidal than methyl violet.

Trikresol.—This agent was used in a 1% solution and gave about the same results as the 2.5% carbolic acid solution, a slight turbidity which did not increase. The experiment was repeated in 1898 with a 2% solution and all growth was prevented.

The relative proportions of the antiseptics and cultures used in the experiments may not have been the best that could have been employed, but since they were used uniformly, and so far as possible all of the conditions were kept the same, the experiment ought to indicate the relative efficiency, as antiseptics, of the agents tested.

Various experimental methods of treating micro-organisms with antiseptics have been employed. Those used in connection with the preceding experiments have already been described. Other methods are given by Rideal (4) as follows:

"Dilution methods.—There are several methods, varying in detail, in which, after exposure of the organisms to the action of the disinfectant, a small portion of the culture is removed and inoculated into a relatively large volume of a nutrient medium. The dilution thus brought about is trusted to reduce the amount of the disinfectant carried over below the amount which would cause inhibition of the growth. If thought advisable, a second inoculation, with further consequent dilution, may be made from a primarily infected culture. It is obviously important that fluid media should be used for the culture test, or otherwise the removal of the antiseptic is not secured.

"Sternberg's Method.—A known volume (5 cc.) of the standardized antiseptic is added to an equal volume of a fluid (bouillon) culture of the micro-organism. After exposure for a given time a small portion of the mixed culture is withdrawn and inoculated into a suitable culture medium. The results are calculated as produced by an antiseptic of one-half the strength of the solution added to the culture. Either the time of exposure or the strength of the solution can be made the variable factor.

“The Drop Method (Wynter Blyth).—Sterilized distilled water is infected with the test organism, and measured volumes of the infected water are added to known volumes of the antiseptic. After a given time a drop of the mixture is added to 10 to 20 grammes of liquefied gelatin medium, and the growth watched. Bouillon is a more suitable medium, as many pathogenic germs grow slowly at temperatures at which gelatin remains solid and retains its distinctive advantages. Bouillon has also been shown in Miquel's experiments to give greater opportunity for the growth of organisms whose vitality has been reduced than the solid media. If it is desired to use microorganisms from cultures in solid media, the growth is scraped off with a wire and suspended in sterile distilled water. Such suspensions, filtered to remove flocculi, are employed advantageously, because the disturbing effects of varying media and the presence of precipitates are avoided.

“The Thread Method. — This is often known as Koch's method, as it was employed by him in examining the action of antiseptics on the spores of bacillus anthracis. Sterilized silk threads were soaked in cultures containing anthrax spores (or, better, suspensions of spores in sterile water) and dried. The threads were allowed to hang in the antiseptic for the desired time and afterwards withdrawn, washed in sterile water, and inoculated either into animals or fresh nutrient media. Koch employed solid media for his inoculations. This method has been much used, and possesses the advantage that the antiseptic can be got rid of by washing. If fluid media are employed for the test cultures it possesses also the advantages of the dilution methods. When employed for non-spore bearing organisms the intermediate drying should be omitted, as that itself will diminish the vitality of many organisms in the vegetable form. Suspensions in sterile water are preferable to fluid cultures in which to soak the threads, as the (often albuminoid) medium forms a coating when dry which protects the organisms. In all cases control experiments must be made in which threads are treated, just as are the test threads except that sterile water is substituted

for the antiseptic. Instead of threads platinum wires have been employed, and Blyth has suggested the use of small plugs of sterilized cotton wool attached to capillary glass rods by means of sealing wax. There must be some difficulty in securing efficient sterilization of these mops."

For furnishing culture media and apparatus for the experiments, I wish to acknowledge the helpful courtesy of Professor V. A. Moore.

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SANITARY WORK IN THE UNITED STATES.

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A Paper presented at the Seventh International Veterinary Congress at Baden-Baden.

Although the American veterinary science, when compared with that of Europe, may be considered as still in its infancy, the work that has already been done is not to be ignored, particularly in the special branch of sanitary medicine.

How could it be otherwise? America being destined to become the market of the whole world, the duty was imposed upon her of seeing not only to the protection of her own stock, but also to the qualities of her products of exportation, whether live animals, or carcasses, or various preparations, which had to be examined before being admitted to European markets.

As the United States developed, as her commerce increased, and her international relations multiplied, it became her duty to protect herself from the presence and the introduction of con-

tagious diseases, and to be able to answer for the qualities of the products she was sending far away across the Atlantic.

Already, some years ago, these were endangered : the presence of pleuro-pneumonia widely spread among her cattle, of hog-cholera, and of trichinosis killing so many of her pigs, had caused European countries to shut their doors to her products. Measures had therefore to be taken, and after several difficulties the Bureau of Animal Industry was created in 1884 by an act of Congress, with the object :

“to prevent the exportation of diseased cattle and provide means for the suppression and extirpation of pleuro-pneumonia and other contagious diseases among domestic animals, and also to prevent the importation of contagion into the country.”

The direction of this special bureau of the Department of Agriculture was entrusted to Dr. D. E. Salmon ; it is to him that the greatest part of the work done is due, and by his efforts that the bureau has been brought to that state of efficiency which now makes it one of the most perfectly organized departments of sanitary veterinary science in the whole world. At first, as indicated by the letter and the spirit of the law of 1884, which created the Bureau of Animal Industry, its duties were almost entirely confined to the eradication of contagious pleuro-pneumonia, which it succeeded so well in stamping out that, after a working period of less than five years and at a cost of about \$1,500,000, from that date not one single case has existed in that country.

But little by little it became necessary to extend its sphere of work, and successively Congress passed new laws, enlarging it and demanding more from it, always with the idea of general and commercial protection.

In 1890 an act was issued providing “for the inspection of meat for exportation, and prohibiting the importation of adulterated articles of food or drinks.” This act began to take effect in 1891, and was shortly after followed by another which provided “for the inspection of live cattle, hogs, and the carcasses, and products thereof which are articles of interstate commerce,

and for other purposes." These three acts constitute the entire object of the existence of the Bureau of Animal Industry; they define its work, viz.: Extirpation of contagious diseases at home. Prevention of importation of contagious diseases from foreign lands. Inspection of meat for home consumption and of that exported to foreign countries.

It is unnecessary to state that these three fundamental laws were amended at various times, as the occasion required. Among these amendments, which had the effect of rendering the work more thorough and efficient, I may mention that of 1895 relating "to the inspection of cattle and sheep for export."

At the beginning of the creation of the Bureau of Animal Industry, its organization was no easy matter: the people were not prepared for it, had not yet been educated to appreciate its usefulness, the number of veterinarians suited to be appointed and do satisfactory work there was comparatively small; but little by little and as years went by, these obstacles were overcome, and a corps of efficient workers was obtained. You can form an idea of the importance of the Bureau of Animal Industry when I tell you that now it is divided into the following sections:

(1) The inspection department, to which is assigned work of an executive nature, including the eradication of contagious diseases, the inspection of export and import animals, meat inspection, inspection of transport vessels, and the regulation of the traffic in Southern cattle (to prevent the spread of Texas fever).

(2) The pathological department, which is principally engaged in investigating the diseases among domestic animals in order to determine their nature, causes, and treatment, together with the most practical method of prevention.

(3) The biochemical department, to which are assigned the chemical problems arising during the investigation of disease, and the preparation of tuberculine, malleine, and the various serums for the prevention and cure of diseases.

(4) The zoological laboratory, to which is assigned the study

of the parasites affecting our domestic animals, and of the diseases which they induce.

(5) The dairy department, which collects and disseminates information relating to the dairy industry in the United States.

(6) The miscellaneous department, which has the supervision of the accounts and expenditure, conducts the general correspondence in regard to diseases and the animal industry of the country, and directs the field investigations.

(7) The experimental stations, where the animals used in the experiments are kept, where small animals for these purposes are bred, and where antitoxin serums for animal diseases are prepared.

Permit me now to lay before you a few facts showing the amount and, what may interest you most, the kind of work done.

I refer to the examination of animals for export and the inspection of meat, both for interstate and export trade.

I. EXAMINATION OF ANIMALS FOR EXPORT.

In his report of 1897 Dr. Salmon says: "The fear expressed by foreign governments of the introduction of pleuro-pneumonia and Texas fever from the United States, made it necessary to adopt some method by which the history of the animals exported could be ascertained and the animals inspected, numbered and registered, so that a certificate could be issued showing freedom from contagion. Occasionally it was alleged by the English inspectors that some of our cattle were suffering from pleuro-pneumonia when landed at the British ports. In two cases, German inspectors reported our cattle affected with Texas fever when they reached Hamburg. The German reports plainly show that the two lots of cattle were not affected with the same disease and that the diagnosis in one case at least must have been incorrect. Such occurrences, however, emphasize the importance of supervising the trade, as our live cattle and fresh beef have been entirely excluded from Germany since this alleged discovery of disease.

"It was found to be by no means a simple matter, at first, to obtain the history of the cattle purchased for export, and to mark them for identification with a numbered tag. Such tags had been put in the ears of cows in the pleuro-pneumonia inspection without any serious trouble, but it was quite another kind of work to go into the stock yards and put tags in the ears of the powerful and bellicose steers, many of which had never recognized the sovereignty of men."

To fully appreciate this difficulty one must know Texan cattle and have approached them.

"By perseverance, however, the details of a practical system were worked out. Tagging chutes were constructed, through which the cattle passes in single file and where the tag could easily be attached to the ear with an ordinary hog ringer." And now this work is in full swing, the cattle are tagged at the first stock yards to which they are shipped, their feeding places are ascertained, a note is made of the cars in which they are forwarded, and the inspector of the bureau at the next unloading point and also at the port from which they are to be exported are notified. In this way the inspector at the port can conscientiously give a certificate of freedom from contagious disease after the animals have passed his inspection.

Sheep are also inspected before exportation, but are not tagged.

The following figures show the amount of work that this system has accomplished :

YEAR	● CATTLE			SHEEP	
	Number of Inspections	Number Tagged	Number Exported	Number of Inspections	Number Exported
1893	611,542	280,570	289,240	—	—
1894	725,243	360,580	363,535	135,780	85,800
1895	657,756	324,339	324,299	704,044	350,808
1896	815,882	377,639	365,345	733,657	422,603
1897	845,116	410,379	390,554	348,108	184,596
1898	859,346	418,694	400,512	297,719	147,907

2. INSPECTION OF MEAT.

Inspection of meat was begun officially in 1891. The law requires that the inspected meat be marked for identification, and this is accomplished by fastening a meat inspection tag to each quarter or piece, with a wire and lead seal.

These tags enable the consumer to learn whether the meat which he is buying has been inspected, because if the wires are properly sealed the tags cannot be removed from one piece and attached to another. The tags are also intended under the law as a means of identifying meat which may be shipped from one State to another or to any foreign country.

When the law is fully complied with, only inspected meat can be used in interstate or foreign commerce. All meat shipped abroad is now inspected, and has been since the beginning of the fiscal year 1892. In 1892 there were inspected for export 1,190,771 quarters of beef; in 1893, 1,036,809; in 1894, 2,417,312 quarters and 4022 smaller pieces. In 1892 there were inspected for the same purpose 583,361 carcasses of sheep and 59,089 of calves. In 1893, 92,947 carcasses of calves and 870,512 of sheep.

I am unable to give you the figures for 1895, 1896 and '97; no doubt they are proportionately the same. The inspection and tagging of canned meat, salted meat and smoked meat are done in the same manner, and the number of those articles is enormous. The number of animals inspected before slaughter in official abattoirs, counting cattle, calves, sheep and hogs, is as follows:

In the year	1891	83,891	In the year	1895	18,783,000
	1892	3,809,459		1896	28,275,739
	1893	4,885,633		1897	26,541,812
	1894	12,944,056		1898	31,213,966

The microscopical examination of pork is a matter which receives the greatest attention at the hands of the Bureau of Animal Industry, carried on, as it is, by a large body of assistant microscopists.

According to Dr. Salmon's reports, the following table shows

the exports (in pounds) of microscopically inspected pork since 1892 to 1898, inclusive :

Years	To countries requiring inspection	To countries not requiring inspection	Total
1892.....	22,025,698.....	16,127,176.....	38,152,874
1893.....	8,059,758.....	12,607,652	20,677,410
1894.....	18,845,119.....	16,592,818.....	35,437,937
1895.....	39,355,230.....	5,739,368.....	45,094,598
1896.....	21,497,321....	1,403,559.....	22,900,880
1897.....	42,570,572.....	1,001,783.....	43,572,355
1898....	120,110,356.....	161,303.....	120,271,659

That the work performed by the Bureau of Animal Industry is immense, and that in the United States sanitary medicine is not behind the efforts made in European countries can be readily appreciated by the preceding figures, and no doubt can be entertained as to the thorough execution of all the laws and regulations when we glance for a moment at the organization of the body of workers who compose the staff of meat inspectors.

This staff is composed of two classes of agents—the professional, viz., the veterinarians who fill the position of inspectors and assistant inspectors; and the non-professional, consisting of stock examiners, taggers and assistant microscopists. The stock examiners are men who have had experience as butchers, cattle dealers, buyers, etc. They are able to assist the veterinarians very much in making ante-mortem examinations and supervising the marking of the meat and other products. The taggers do the work of laborers, putting on tags, stamping boxes, cancelling stamps, etc. The assistant microscopists are all engaged in the trichina inspection. They have been trained in the work and are under the supervision of a microscopist who in most cases is a veterinarian.

This little army, 877 strong, is divided as follows: 157 inspectors, 1 live stock agent, 145 stock examiners, 207 taggers, 319 assistant microscopists; the balance is made up of clerks and laborers.

The keep of this army amounts to about \$400,000 a year. It is a small sum for the amount of work it does, and certainly,

when you take into consideration the good results and the benefit that are derived from it, due credit cannot be refused nor the efforts remain unrecognized, and I may be allowed to ask if the example is not worthy to be followed.

THE VETERINARIAN OF THE FUTURE.

BY N. S. MAYO, M. S., D. V. S., STORRS, CONN.

A Paper read before the 36th Annual Meeting of the American Veterinary Medical Association.

I am not a prophet, nor the son of a prophet, nor am I endowed with any special "gifts" for revealing the future of the veterinarian that is to come, and yet I do claim the privilege, so dear to the heart of every citizen of the Republic, of expressing one's opinion, however erroneous it may be.

We are standing to-day upon the threshold of a new century, a century so fraught with possibilities of progress that even the most optimistic dare not dream, and it may not be amiss if we pause, and see if we cannot, by thoughtful consideration, add something that may be helpful to the veterinarian of the future to take his place in the vanguard of the rapid march of the progress that is coming.

We all know how rapid has been the progress of veterinary science and art in the past twenty-five years. It is within the memory of most of us when the fleam was the sheet anchor in the treatment of most of the diseases of animals, and I can remember listening with boyish wonder to the deadly perils of "hollow horn" and "wolf-in-the-tail." I shall not weary you with a recital of the recent progress of our profession. Consider our knowledge of anthrax, pleuro-pneumonia, Texas fever, tuberculosis and most other diseases. I do not believe the progress of veterinary science has been excelled by any other branch of medical science.

I believe the veterinarian of the future must choose his profession from high and noble motives, not for monetary considerations alone, but because of a desire to alleviate the suffer-

ings and assuage the pain of "those who cannot speak."

I believe that the secret of success of the veterinarian of the future will be in his education, and I also believe that this education should begin in the home, because it is here that those abiding principles that shall govern his future life are instilled. It is here that he should learn the love of animals. It is here that habits of industry, so essential in all walks of life, are inculcated. It is here that integrity and honesty should be acquired, an "honesty from principle and not from policy." I sometimes feel as if the necessary association of veterinarians with those who traffic in horses sometimes leads them into practices that should not be tolerated, and so I believe that the successful veterinarian of the future must be one whose integrity is above reproach.

After the home training I believe that the veterinarian of the future should have the best education that is possible in the common school, high school, college and university. I am a firm believer in the new industrial education, the laboratory method, that which trains not only the brain to devise but the hand to execute, that teaches how to do, by doing.

I think I should place first among the educational requirements for the future veterinarian a thorough knowledge of the English language, "the mother tongue." In order that a man may get the best of knowledge from another or from the literature of to-day it is necessary that he understands the language. I believe that the Anglo-Saxon will rule the world, that the English language will dominate mankind. There is "the hand writing upon the wall," and it is written in English. Regarding Latin I suppose I am a heretic; it is important but not essential—important only because of its connection with science in the past, but medical progress is fast cutting loose from the traditional past and has set her eager face towards the glowing future. I believe the modern languages, French or German, more important because they open to us a mine of information in original research that the patient, plodding investigators in other lands are doing to-day for the advancement of science.

Next in importance I should place a thorough training in the natural sciences, zoölogy, botany, chemistry and physics; they are the handmaids of our profession. They will teach a love of truth for Truth's sake; they will be a source of genuine pleasure and will open beautiful vistas along the pathway of life for his enjoyment, and he will find "sermons in stones, books in brooks and good in everything." In the technical education of the future veterinarian I should place greater stress upon microscopy, embryology, histology, pathology and bacteriology, because of their scientific training, the study of the cell, the "unit of life," as well as death, and the changes they undergo, normally and in disease, and I believe this knowledge should be acquired in the laboratory. I am not a believer in the lecture-room except as an aid. Don't stuff the student with facts; give him the training and the opportunity, and he will acquire them himself.

There is a wonderful opportunity for scientific research in our profession; every day brings us face to face with the unknown, with great problems that need to be solved, and in the great stock-raising States of the West is a field for scientific research, "white for the harvest."

What are the rewards?

I know it is often said that republics are ungrateful; if this is so, it is to be hoped they will soon reform, but there are excellent opportunities and rewards in the experiment stations of the various States and in the National Bureau of Animal Industry, where compensation for good work is not meagre. Then there is the reward in personal satisfaction that comes with the successful solving of nature's secrets, secrets known only to the investigator and to God who made them, and the satisfaction of the reward that all mankind yields to him who by his efforts helps mankind or the animals in his keeping.

If I may be permitted a word of caution to the veterinarian of the future it would be to go slowly—*be sure*. I know our eager American spirit is clamoring for results, but go slowly; do not let your enthusiastic devotion to scientific inquiry lead

you to hasty conclusions. The medical profession is easily thrown into ecstatic convulsions over wonderful discoveries in medical science, but the "sobering off" is sometimes distressing, both to the profession and to the would-be investigator.

With a liberal education, a thorough knowledge of the mother tongue, and the natural sciences, well trained in his profession and with a true spirit of scientific inquiry, I feel sure the veterinarian of the future will be in the vanguard of the march of progress in the new century that is dawning. I think it is Carlyle who says that a people's bible should be its own history. So let it be with our profession. The veterinarian of the past has written the old testament, the veterinarian of the future must write the new.

QUITTOR.

BY GEO. H. BERNS, D. V. S., BROOKLYN, N. Y.

Read before the Annual Meeting of the New York State V. M. Society,
Sept. 9, 1899.

Quittor in horses has been recognized for years, and is acknowledged by all veterinarians of experience as an extremely unmanageable disease, testing the skill of the veterinarian, taxing the patience of the owners to the utmost, and in many instances terminating unfavorably after months of careful attendance.

The low organization and lack of vitality of the structures involved, and the unfavorable position in which they are situated anatomically are the chief causes of the obstinate character of true cartilaginous quittor.

The lateral fibro-cartilage if once inflamed, which may occur from a large variety of causes, slowly but surely becomes necrotic in spots, suppurates, and abscesses form, rupturing at the point where the least resistance is offered—that is, in an upward direction from the original seat of suppuration, leaving after partial healing fistulous tracts, frequently irregular in their course and several inches in length, which discharge a

thin greenish pus. At the same time the surrounding subcutaneous cellular connective tissue becomes filled with plastic infiltrations, the skin loses its elasticity and becomes thickened and indurated; the coronary band from constant irritation, by inflammation of adjacent structures, is stimulated to increased activity and secretes an imperfectly formed horn, giving the wall of the foot a peculiar rough, brittle and rammy appearance.

If perchance the fistulous tract closes up and the practitioner begins to hope for a speedy and favorable termination, he is very apt to be undeceived in a week or two, when his patient will again become very lame, the parts again begin to swell, new abscesses form and new fistulous tracts follow; this process, in spite of the most careful and skillful treatment on the part of the attending veterinarian, continues for months without any appreciable change, or it may assume an acute character, the synovial capsule of the distal phalangeal articulation or its ligaments, the coronary band, the entire keratogenic apparatus, may become involved in acute suppurative inflammation, causing casting off of the entire horny foot, and from absorption of the septic material which, in this stage, is so abundantly formed, produce blood-poisoning of the entire system.

The causes of quittor are numerous and diversified. Natural conformation predisposes the low flat foot, with oblique heels, to diseases of the quarters and basilar processes of the pedal bones, to injuries to the soles, to quarter cracks, broken bars, etc.; all of which are in many instances direct causes of quittor. The strong boxy foot is predisposed to contraction of the heels and quarter cracks from this cause, diseases of the bars, deep-seated, blind or suppurating corns, which may also be instrumental in the formation of quittor. Nail wounds or pricks in shoeing, producing acute suppurative inflammation and extending to the coronary band, the skin, cellular sub-coronary tissue and finally the lateral cartilage. Direct injuries to the pastern and coronet, accidental causes, frost bites, septic cellulitis; in fact, almost any inflammatory condition of any part of the foot is sometimes followed by this disease.

Considering the fact that the lateral fibro-cartilage is the chief seat of trouble, that it is of low vitality and therefore (in case of inflammation) slow to re-act; that from an anatomical point of view it is situated in a position most unfavorable to perfect drainage, it is not to be wondered at that the remedies which are ordinarily effectual in the treatment of wounds and surgical conditions have but little effect on quitters.

During the last twenty years a large number of cases of quitter have come under my care, and for about eighteen years under the conservative system of treatment as laid down in the older text books and practiced by most veterinarians to-day, the results were anything but satisfactory.

Some two or three years ago the late Dr. L. T. Bell, of Brooklyn, who had been very successful in the treatment of quitter by operation, kindly operated upon a patient of mine at my infirmary, assisted by his business partner, Dr. W. F. Doyle. The operation was so neatly performed, and the termination of the case so satisfactory, that I at once adopted his method of treatment in all chronic cases, and since that time twelve animals have been operated upon, all of which were cases of from two to five months standing; ten of the twelve made complete recoveries in from four to eight weeks, one was left with a false quarter, but shows no lameness and is working every day, and one operated on some three months ago healed up kindly, went to work for a week or two, when he again became very lame from an abscess which suppurated freely; he is now in a pasture field, the abscess nearly healed, and showing but little lameness.

The operation consists in removing as far as possible all the diseased structures involved in true quitter without lacerating, incising or in any way injuring the coronary band, nor the capsule of the coffin joint, which lies very close to the inner surface of the lateral cartilage.

The parts that are always involved are the lateral fibro-cartilage and the sub-coronary cellular connective tissue, which completely covers the cartilage. In rare cases the basilar and retrosal processes of the pedal bone are necrosed.

In operating I experience but little difficulty in removing the cartilage, and if necessary the wing of the coffin bone. The wounds left usually heal without much trouble in from four to six weeks, when the patient shows no more lameness; the cavity which was made by the removal of the cartilage is filled with firm new granulations, and the coronary band again united with the foot in its entire length, and the new horn secreted by the podophylous tissue is sufficiently strong to enable the horse to do ordinary slow work. In about eight or nine months a complete and perfect new wall has been formed, and the foot shows little if any external indications that it has ever been operated upon.

In operating I follow the plan of Bernhard as described by Liautard in his excellent work on "Operative Veterinary Surgery" in all cases where the wall of the foot is comparatively sound, and where no corns, broken bars or other lesions can be detected at the plantar surface, as their absence is a fairly safe indication that the wings of the pedal bone are not affected. The foot is prepared by clipping the hair over the tumor as closely as possible, by having the horny wall from the heels to the toe and from the inferior border of the wall up to the coronary rasped down until the blood begins to ooze through the horn, and special care should be taken to see that the inferior border of the wall is pared down as close as possible to the sensitive structures, for if left it is apt to interfere with the operation by preventing the proper directing of the blade of the sage knife during the most critical stage of the operation, and that is when the inner surface of the cartilage is detached from the ligaments and articular capsule of the joint. The animal is then cast, properly secured, and if considered advisable placed under the influence of an anæsthetic; an elastic bandage is next placed tightly around the pastern and ankle to prevent arterial hæmorrhage, and the horn to the extent of one quarter of an inch parallel with and just below the coronary border is removed with a small drawing-knife and a semicircular incision following this groove is made. It should extend from the anterior border of

the cartilage to the heel, and completely separate the coronary band from the podophylous tissue and sever the inferior margin of the cartilage from its attachment to the wings of the pedal bone. The sage knife, with convexed surface outward, is then gently but firmly pushed under the coronary band and skin in the centre of the tumor in an upward direction until the superior border of the cartilage is reached, which can be easily determined by the left hand, which should trace the movements of the point of the knife through the skin; then by a slow and careful rotary motion the skin is separated from its underlying bed of indurated connective tissue over the entire length of the cartilage, care being taken that injuries to the coronary band are avoided. If the sub-coronary connective tissue be greatly thickened, which is indicated by the size of the tumor, that portion of it lying between the external surface of the cartilage and the skin should be removed, which leaves a space sufficiently large to introduce a finger and explore the cavity.

The removal of the cartilage is next effected by beginning at the heel and introducing the blade of the sage knife carefully under its posterior border, and slowly and carefully separating the inner surface of the cartilage from its connective-tissue bed, from the ligaments and the synovial capsule of the coffin joint, which lies directly under and very close to the inner face of the anterior half of the cartilage. If the toe is extended and the movements of the sage knife carefully guided by the left hand there is but little danger of injuring the synovial capsule. The cartilage is then seized with a strong pair of forceps and pulled downward and outward from under the coronary band, and any small adhesions remaining are severed, until the cartilage is entirely liberated. The cavity is then carefully explored and all partly detached tissues removed, edge of coronary band trimmed, and the wound dressed in accordance with the well-established principles of aseptic surgery.

If the quittor be caused by a quarter-crack, broken bar, deep-seated corn or accidental injury to the quarter or plantar surface, the basilar and retrosal processes of the pedal bone are very apt

to be involved and should be exposed, examined and all detached or necrosed portions carefully removed. This can only be accomplished by stripping that portion of the wall which lies between the anterior border of the cartilage and heel, from its attachment to the coronary band above, podophylous tissue on its inner face and the sole below. The sole and bar are pared very thin, a groove extending from the coronary band to the inferior border of the foot, directly in front of the anterior border of the cartilage, is made with a drawing knife. This groove must extend completely through the entire thickness of the wall and connect with a similar groove at the linea alba of the plantar surface extending to the heel and completely dividing the bar.

When the part is thus completely separated by the two grooves mentioned, it can be easily torn from its attachment to the podophylous tissues beneath, and detached from coronary band above by the use of a strong pair of ordinary horseshoer's pinchers. The inferior border of the detached wall is firmly grasped with the pinchers, and by a slow but firm outward and upward twist the wall is separated, leaving the podophylous tissues and wing of the pedal bone exposed. After devoting such attention to the pedal bone as conditions may indicate, the operation of removing the cartilage is proceeded with as described above.

FRACTURES.

BY H. T. CARPENTER, V. S., ADA, OHIO.

A Paper read before the Annual Meeting of the Ohio State Veterinary Medical Association.

The subject I have chosen for my communication is "Fractures," not that I feel as if I can impart any great knowledge on the subject, but think no part of veterinary science so greatly neglected; so shall give a brief history of a few cases I have treated, with the hope that it bring forth a discussion.

Case 1.—Bay gelding, four years old; simple fracture of tibia; horse placed in slings, which was made for the occasion, my own being in use; leg was set with splints and bandages. After leaving, horse fell out of slings. Owner feeling discouraged, turned it out with other horses and let run at large; seven weeks after splints were removed; bone united; the horse is at work on farm at present time, considerable enlargement remaining, but no lameness.

Case 2.—Gray mare, five years old; compound fracture of tibia; bone passing through skin about two inches; considerable hæmorrhage; animal placed in slings; fracture reduced; wound treated antiseptically; splints and bandages applied, but owing to extreme suffering mare was destroyed five days afterwards.

Case 3.—Simple fracture of os-suffraginis in colt, two months old; plaster Paris bandages applied, also splints on both sides to keep foot from turning; colt kept in box-stall; recovery rapid and complete.

Case 4.—Bay gelding, four years of age; compound fracture of tibia; horse placed in slings; fracture reduced; splints and bandages applied, after which a rope was applied extending from foot to stifle-joint and allowed to remain on six weeks, when the leg began to smell offensive; rope, bandages and splints removed; found one of the splints had cut leg very bad, making ugly sore, which was treated with iodoform and boracic acid; splints again placed on and bandages lightly applied, owner removing them every three days, treated sore, replaced them himself; in nine weeks horse taken out of slings; leg well rubbed with liniments; horse now doing daily work on farm.

Case 5.—Short-horn heifer, two years old; comminuted fracture of metatarsal bone; animal placed in stanchion; fracture reduced after considerable manipulation; splints and starch bandages applied; reunion in seven weeks, and after removing bandages several small pieces of bone worked through the skin and were removed; cow well at present time; slight

enlargement remaining, can only be seen by getting close to her.

Case 6.—Colt, one month old; compound fracture of tibia; leg set with splints and bandages; let run in box-stall; splints worked loose in about ten days; was re-set; colt was relieved of splints in seven weeks and leg very little crooked.

These are only a few of the many cases I have treated in the past two years and are not picked cases, but just as they appear on my note-book. I will now conclude by thanking you for your attention.

REPORTS OF CASES.

“ Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

TWO CASES OF EQUINE RABIES.

By ROSCOE R. BELL, D. V. S., Brooklyn, N. Y.

For one veterinarian to meet two cases of this affection in a few days more than one month is a record seldom equalled. But, so far as clinical appearances go, such has been the experience in my practice. Whether observers who have the time and opportunity to search for the specific germ or inoculate small animals to reproduce the symptoms are willing to accept my diagnosis, I know not. But the manifestations of the symptoms were absolutely unlike any other condition met with in an active practice of some thirteen years, and were so closely allied to those employed by authors in describing equine rabies, that I have no hesitation in accepting them as cases of true rabies of the furious form. The first case occurred on Saturday morning, September 9, while I was in New York City, in attendance upon the meeting of the State Veterinary Medical Society. The call was responded to by my assistant, Dr. Walter Lincoln Bell (McGill '98), and the following description of the symptoms presented are furnished by him:

Case No. I.—Gray gelding, about 10 years, in good bodily condition, property of Mr. Stottman, grocer, Sixth Avenue and Fifth Street, City. Had been put in his stall on Friday evening apparently in the best of health, but when fed in the morning it

was noticed that he seemed nervous, and upon being brought out to be hitched to the delivery wagon was so restless that it required a man to hold him while the attachments were completed. When finally the driver took his seat with lines in hand he ran away, falling when intentionally forced against a lamp-post. Those who saw him were sure that the animal was irresponsible for his actions, as he seemed to be so very nervous and unnatural in his actions. Reconducted to his stall he became furious, and his attendant had to flee for safety. At this point my office was called up and my assistant responded. Upon arrival he found the patient in an extremely nervous condition, with champing of the jaws, salivation, licking his nose and biting at his side. Before removing him from the stall his temperature was taken, which was $105\frac{1}{2}^{\circ}$ F. His nose was considerably swollen and he had rubbed all the skin from it. On attempting to take his pulse the animal made a vicious lunge at the operator, with mouth wide open, which attack was avoided. There were marks upon the nose which looked as though they might have been caused by a dog's teeth, and the horse would every little while rub the spot against the wall or manger and lick it with his tongue. This he continued to do until it was a mass of denuded bleeding flesh. Upon holding the handle of a pitchfork near him he grabbed it with his teeth and held on to it in the manner that a dog would, repeating the performance as often as it was placed within his vision. His whinny was most peculiar, foreign to that of a horse, resembling somewhat the diagnostic howl of a rabid dog. The owner not wishing him destroyed, he was given a dose of chloral hydrate dissolved in a pail of drinking water. The symptoms became rapidly worse, and in his fury he tore the boards of the stall partitions and manger, kicking, pawing, lunging at objects, until the owner had him shot by an officer of the A. S. P. C. A. the evening of the day on which the first symptoms were observed.

Case No. II.—Gray gelding, about ten years old, in good condition, property of the Brooklyn Sanitary Company, used in the wagon of one of the inspectors, and stabled at 6th Street near Second Ave., a short distance from Case No. I. Had worked the day previous satisfactorily, and the first thing noticed of an unusual character was on the morning of Oct. 13 at six o'clock, when he kicked at a passing horse, an act which he had never been known to be guilty of before. On another horse being led past his stall he not only kicked but was observed to grasp the manger with his teeth. When the stableman entered his stall

to see what the trouble was he was glad to escape with his life, so savagely did the beast attack him. Forcing him out of the stall by operating from an adjoining one it was found that the animal was frenzied, and he was with difficulty gotten into a strong box-stall, where he rolled and exhibited symptoms of great uneasiness. Thinking that it might be a form of colic, my office was called up with instructions to come at once to a case of colic. Upon arrival I found the patient standing with his head over the half-door, his body wet with perspiration, muscles trembling, jaws champing, and making yawning gasps. The attendant showed how it angered the horse to strike at him, and he at once made an open-mouth dash at his tormentor. I pointed a broom-handle at the horse, which he seized in his teeth, thrust out of my hand and broke into many pieces. His blanket had fallen from his body and lay upon the stall floor. Its presence seemed to greatly irritate him, and he would stamp upon it with both front feet, seize it with his teeth and shake it in the manner a dog would treat a rat. He would become so infuriated that he would throw himself upon the floor and roll over, still holding the blanket in his teeth. He would return to the blanket every few minutes, and go through the same performance. I had his stall made secure and darkened, with instructions that he should be undisturbed beyond administering an occasional drink of water in which half-ounce doses of bromide of potassium were dissolved. This was accomplished by attaching a lead line to the handle of a pail, and lowering it into his stall. He drank with avidity, trembling violently while doing so. He would rub the side of his nostril against the manger or wall until it bled and became very raw.

I returned at 11.30 and by invitation met there Dr. George H. Berns and my assistant, who witnessed similar symptoms to those above described. We succeeded in obtaining two snapshots at the patient while engaged in furious attacks upon objects with a small pocket camera.

The foreman agreed to keep the patient as long as I wished, and it was my intention to invite a number of veterinarians of the city to see the case; but in about two hours I was informed over the telephone that he was down and unable to rise, becoming very rapidly paralyzed. Not wishing to cause unnecessary suffering, I directed that the animal be destroyed by shooting. The local office of the A. S. P. C. A. was notified, and an officer was at once dispatched, but upon his arrival the patient was dead.

Post-mortems were not held upon either patient, and the

clinical facts are given just as they occurred and for what they are worth. The fact that both patients inflicted great personal injury upon their muzzles, and that the district in which they operated was the same, leads me to suspect that a rabid dog passing along the street, and finding the horses standing near the curb had bitten each of them in the nose.

FIVE MONTHS WITHOUT MOVEMENT OF DOG'S BOWELS.

By H. W. SKERRITT, V. S., Utica, N. Y.

On Sept. 14th I was called to examine an eighteen-months-old Newfoundland dog, with the history about as follows; The owner decided about six months since, on account of the fleshy condition of their dog, that they would have him clipped, and it was done. In a short time the dog was noticed to be somewhat dull and not at all like himself. This was not considered serious, but thought his summer vacation at Saranac Lake, where the owner's family expected to spend the summer months, would round him up all right. But his condition seemed to go from bad to worse all summer. They also noticed that his bowels seemed to be much constipated, nothing passing save a little slime once every few days; appetite poor all the time; losing flesh very fast, and he became too stupid to play any more with the children. I found him to be quite worn out, so to speak; eyes much sunken, face bearing a dejected appearance, coat nice and clean, but unthrifty, and but little flesh on his frame. On examination I discovered what seemed like two large tumors in the abdomen. I decided to operate upon him, and if possible remove these masses; if not, to let him remain asleep. His owner, Prof. Griffiths, of this city, being anxious to witness the operation, the dog was sent to my hospital kennels, and prepared by using the A. C. E. mixture, the parts being thoroughly cleansed, using solution of bichloride. An incision several inches long was made, exposing the tumor-like mass, which proved to be impaction of the colon and cæcum to such an extent that it was thought advisable to again use the chloroform. After death I removed the impacted bowel and found it to measure 3 ft. 7 in. in length by 11 inches in circumference, weighing 8 lbs. On section it showed like dried-down extract of ingesta, the bowels not having moved in proper form in five months. There was not a trace of inflammation present. All other organs were normal.

I trust this may be of sufficient interest to find its way into the columns of the REVIEW, a journal I wish every success.

POLL-EVIL—FISTULOUS WITHERS—AMPUTATION OF A COW'S
HIND LEG.

By A. W. BAKER, V. S., Brasher Falls, N. Y.

In response to Dr. Merillat's article in the October REVIEW asking for data relating to poll-evil and fistulæ of the withers, my opinion is that both readily yield to treatment, which opinion has been borne out by treating a large number of cases, of which one of poll-evil was the only case that did not recover; dying six months after operation from an abscess forming on the brain. In treating them I make free drainage incisions, examining carefully for diseased vertebræ; I then remove all diseased muscle, ligament or bone, pack the cavity with absorbent cotton, saturated with a 1-400 solution of corrosive sublimate. This I leave in twenty-four or thirty-six hours, remove the packing and afterwards dress with creolin solution, 1-20, for two weeks; then 1-40 until recovery takes place.

I would like to mention an amputation of a cow's hind leg. The cow had a compound fracture of the tibia, four inches below the patella, which had been reduced and put in a plaster-of-paris cast by an M. D. The fractured ends refused to unite, and on being called in, eighteen days after, I decided to amputate the leg, which I did by the flap method. The after treatment consisted of irrigations of a 1-30 solution of creolin. I saw the cow two weeks after operating and found the wound healthy, with no indication of sloughing.

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By PROF. OLOF SCHWARZKOPF, Flushing, N. Y.

TANNOFORM IN VETERINARY PRACTICE.—This new preparation of Merck's is the product of condensation of tannic acid and formaldehyde. It is a whitish-red, odorless powder, insoluble in water, and of a double-action, it being astringent and antiseptic. In human medicines this remedy soon conquered a foremost place of usefulness, but has been used little in veterinary practice. Rabus-Laudau publishes a number of reports of its application on wounds in dogs and horses, which appear to recommend it as a remedy favoring a very quick and complete healing process. R. has applied tannoform, pure, as a powder

in moist, foetid eczemas and in old ulcers; as tannoform with alum ā.ā. in over granulations; as ointment with lanolin 5,0-25,0 over healing wounds as a protection; as collodion 5-10% with a brush applied over fresh sutures, and introduced into fistulæ. It appears that tannoform stops quickly the wound-secretions, that it deodorizes perfectly, and soon forms a dry, brown and consistent scab which, on falling off, presents a healed wound.

LIQUOR NATRII SALICYLICI IN TENDONITIS.—Army veterinarian Meinecke recommends the treatment of acute and chronic inflammations of the flexor tendons with bandages saturated with this fluid. He has used this method for several years. In acute inflammations with much swelling he uses diligently cold washings for 2-3 days. Then he applies a clean, elastic flannel bandage with the greatest care to avoid folds. Over this he winds another bandage soaked in the liquor, allowing the first bandage to protrude slightly at both ends over the saturated bandage. The process of hardening commences at once and is complete in a few hours. 200-300 grammes of the liquor are sufficient for any application. If the horse is very lame, he allows it to rest for a few days, otherwise it is gently exercised. In chronic forms he has permitted the bandage to remain on for three months at a time with daily use in the saddle and with complete success. These bandages have the advantage of light-weight, and they are strong and easily removed.

ANTIFIBRIN IN LAMINITIS.—Hausen-Flanders reports the use of antifibrin in 46 cases of laminitis. He had formerly used pilocarpine and arecoline, but considers the effects of antifibrin superior. He allows the shoe to remain on the foot, but extracts the toe-nails, and envelops the feet into bags frequently moistened. The horse should stand on a good bedding. He prescribes antifibrin 15.0 every six hours, with little food and no water the first day, a quarter pail the second day. Thus treated the majority of cases recovered within 2-3 days, *i. e.*, they were put to use that soon.

RUSSIAN REVIEW.

IMMUNITY AGAINST RINDERPEST—TREATMENT OF THE DISEASE [*By Nietskii, Ziber and Vijnikievitch*].—Thanks to the investigations made by the authors, immunity against rinderpest and treatment of the disease seem to have made a

successful step forward. The principle of the method used by the authors is as follows: (1) *Immunization with the bile of animals dead with rinderpest*. Injections of bile give only uncertain and unreliable results, vaccinated animals taking sometimes the disease under a fatal form and being able to propagate the disease; in other cases, they are not immunized, or are only for a short time. (2) *Immunization with serum*. This is a better method; is entirely harmless; vaccinated animals show no reaction, and are protected from contagion. Serum is furnished by animals that have resisted the disease taken by contagion or inoculation. This immunity is reinforced by intravenous injections of virulent blood with increasing doses, which for young bovines can be as high as 4 to 6 litres, according to size. The virulent blood is taken, with the ordinary cases, at the last period of the disease, when the temperature goes down, but before collapse sets in. According to the size of the animal to be immunized, from 50 to 150 c.c. of serum are injected. Immunity lasts from four to six months. (3) *Immunization with serum and injections of virulent blood*. 2/10 of c.c. of virulent blood are injected in the neck of adult bovines, and 1/10 of c.c. to sucking calves, and two to four hours after, in another region of the body, the inguinal regions, for instance, from 20 to 40 c.c. of serum are injected. According to the quantity of injected serum, there is no reaction following, or at least very small. Some ten days after, a new injection of 2/10 of c.c. gives rise to no reaction; immunity is reinforced, and may last several years. (4) *Serotherapy*. If 200 c.c. of serum are injected to animals affected by rinderpest in the first period, that is the first or second day of the elevation of temperature, surprising results are frequently obtained. The treatment by serum may also succeed, although with less certainty, in a more advanced period of the disease. A commission appointed by the government to investigate the work of the authors, has reported favorably on it, with the restrictions that the experiments have not been sufficiently extensive to justify the admission of the method in daily practice.—(*Archiv. Veterin. Naouk and R. de M. V.*)

EPIZOOTY OF LICHEN [*By Kramaviev*].—The author has observed an outbreak of this disease in a herd of 240 horses, from one to five years old, living together on a range. These animals were turned out on April 15, and at the end of May were found diseased. On June 11, 196 of them were affected. The disease seems to have started after the introduction of a

black three-year-old colt upon which numerous hairless patches existed. Those were supposed to be due to want of care during a severe winter. At first this horse was in good condition, but soon lost flesh and was ultimately taken from the herd and destroyed. The 196 diseased presented lesions which permitted to divide them into three groups, according to the severity of the lesions. The 92 of the first group had on the throat, neck, chest, shoulders, loins and flanks wide hairless patches as large as a soup plate. In six of them, the trunk was entirely hairless, all the diseased parts were covered with blackish crusts, adhering quite firmly to the skin, and with greyish scabs easily removed. Under them, the skin was dry; seldom moist with a little serosity. There was no exaggeration of sensibility of the skin nor any itching. In the second group, there were 74 horses. The patches had an annular shape, as large as a rouble (a silver dollar); some, however, as wide as the hand. They were covered with a white-greyish substance, and the few hairs remaining in the centre looked as if the patches had been clipped. On their circumference there were red spots or small vesicles filled with liquid; the hairs were easily pulled away and the hair bulbs appeared then covered with a fine greyish powder. The 30 horses of the last group had no hairless patches, but the head, neck and flanks were covered with red spots varying in size from that of a small lens to that of a five-cent piece, and also with very small vesicles filled with fluid. All the animals were affected. The lesions were more marked on dark colored individuals than in those with light coat. The articulated threads and free spores of the *trichophyton tonsurans* found with the microscope confirmed the diagnosis made by the author. The treatment consisted of washings with warm water, followed by repeated applications of an ointment made of green soap and creolin. The disease did not affect the men who took charge of the animals, although they took no precautions against infection.—(*Archiv. Veterin. Naouk and R. de M. V.*)

OPERATION FOR VENTRAL HERNIA [*By Malinovsky*].—A 20-year-old horse received a severe bruise on the left inguinal region, which was followed by the formation of a swelling as big as two fists, soft, and slightly painful. Reduced by pressure, a small opening through the abdominal walls was readily discovered. The next day the tumor had considerably increased, was painful and irreducible. Fearing strangulation, the author decided to operate. The skin, three times the normal thickness, was incised, and the protruding small intestine was exposed. It

was highly congested and patched with ecchymotic spots. After careful disinfection, the intestine was reduced after slightly enlarging the hernial ring. This was closed with a strong suture, and, the skin being stitched, a bandage was applied and covered with antiseptic dressing of sublimate. In three days the dressing was removed and the sutures of the skin removed. Later on several abscesses formed on the hind legs, which gave rise to some febrile reaction: had these been avoided, the patient could have returned to his work a week after the operation, the hernial opening having cicatrized by first intention in three days.—(*Archiv. Veterin. Naouk and R. de M. V.*)

REVIEW OF OBSTETRICS.

GLYCERINE IN OBSTETRICS [*By M. R. Bissange*].—Called to severe case of distokia, due to the large size of the foetus, and being unable to obtain oil or grease to facilitate the exit of the calf, the author resorted to glycerine, with which he rubbed his hands and arms, as well as the walls of the vagina and such parts of the calf as he could reach. As soon as this was done the womb began to contract, the efforts of the cow increased and in a few minutes an enormous calf was brought out. Mr. R. Bissange had on previous occasions resorted to injections of glycerine water, and recommends both methods in all difficult cases of labor. The advantages of this ingredient are numerous: its unctuousity facilitates the introduction of the arm of the accoucher and also the slippery condition of the tissues, thus covered, is considerably increased. The tissues become more supple, more resisting, they are tonified, and the uterine contractions soon follow its application. Glycerine has also antiseptic properties which must not be ignored. Its use is preferable to mucilaginous or oily preparations. The author has obtained great success in laborious delivery by the injection of from 15 to 30 grammes through the neck of the uterus and thus gave rise to violent uterine contractions. He recommends it also against the rigidity of the os when it is free from lesion. It is more efficacious and more active than ergotine, hyosciamine, etc. He also advises its use in the treatment of lacerations of the vulva or of the vagina after delivery.—(*Rec. de Med. Vet.*)

DISTOKIA BY LATERAL FLEXION OF THE NECK.—FORCED EXTRACTION [*By M. Mésier*].—The presentation was anterior, in vertebro-sacral position, with the neck bent on one side and

the head resting on the thoracic walls towards the umbilicus. By exploration the position was readily made out; the forelegs were engaged in the straight. Notwithstanding repeated attempts it was impossible to return the head to its normal position; and it was not possible to pass a rope around the neck or on any part of the neck. Forced extraction with the windlass of a truck was decided upon, after tying the fore legs to it. The operation was perfectly successful and a well-formed dead calf extracted. The cow had no bad results from the operation. This animal had already had several calves and her passages were quite large. Perhaps these are the reasons that the operation was successful, contrary to the generality.—(*Rec. de Med. Vet.*)

UTERINE LACERATION AT THE TIME OF DELIVERY AS A CONSEQUENCE OF TORSION [*By A. Lucet*].—The author, who is a close observer, considering the subject of laceration of the uterus, calls some spontaneous, indicating that they take place independently of any interference from the accoucher and only by the powerful contractions of the muscular coat of the uterus. He relates three cases in relation to this question. With the exception of one, where manipulations, made previous to the diagnosis, might make the case doubtful, the two others are positive. The lesion undoubtedly took place before Mr. Lucet was called and no manipulations of any kind having been made before its arrival. In the three cases the examination of the uterus revealed a transversal laceration of the muscular coat, situated on the inferior face of the uterus. The three calves were delivered alive after reduction of the torsion; the cows went to the butcher.—(*Rec. de Med. Vet.*)

BIBLIOGRAPHY.

HORSES, SADDLES AND BRIDLES. By Colonel W. H. Carter, U. S. A. Retcheson and Reeves. Leavenworth, Kan. Price \$2.65.

Since equitation is a subject of the army veterinary examination, the applicants for this examination will do well to acquaint themselves with its principles. There are a number of such books published in English and other languages, but none of recent date. The above treatise is the work of an American cavalry officer of experience and high standing. It is thoroughly American in its character, upholding the methods in vogue in our cavalry; it is practical, unprejudiced and de-

lightfully written. It contains chapters on the conformation of the cavalry-horse, physiology of motion and mode of examination for purchase ; on bits and saddles, packs, seats, and training ; on forage, stable-management and on the common diseases and injuries of the horse. This last chapter is intended for cavalry officers who are away with detachments without a veterinarian. The book is profusely illustrated with plates from photographs taken for the purpose.

CORRESPONDENCE.

A VOICE FROM THE ARMY.

MAYAGUES, PORTO RICO, October 15, 1899.

Editors American Veterinary Review :

DEAR SIRs:—Notwithstanding the fact that but thirty-five per cent. of the army veterinarians who took the examination for the position of veterinarian of the first class under the new law (providing that there shall be two veterinarians to each cavalry regiment, one to receive the pay and allowances of a second lieutenant of cavalry, the other to receive the pay of \$75 per month and the allowances of a sergeant-major, the former, however, to be subject to an examination as to his mental, moral and physical qualifications before receiving the appointment) passed, the impression appears to prevail that the examination was but a perfunctory one after all, and this impression has been permitted to “wabash” along its merry way unchecked or unchallenged, although it is evident that this opinion reflects on the examining board appointed by the War Department, as well as upon those of us who have succeeded in passing.

In connection with the above subject, a few remarks from one who has been there may not be out of place, when the eyes of the profession are turned on the army from a veterinary standpoint, and in view of the fact that another examination is to be held in the near future to fill the remaining vacancies.

The examinations were handled by a special board, which got up the questions in Washington, forwarded them to the different stations at which the candidates were stationed ; at these stations local boards were appointed by the commanding officers, acting under instructions ; these boards, consisting generally of three officers, opened the envelope containing the

questions for that time, in the presence of the candidate, and the examination proceeded under close supervision.

The subjects were as follows :

First Day (6 hours)—Grammar, arithmetic, geography.

Second Day (6 hours)—History, conformation and soundness, sanitary medicine.

Third Day (6 hours)—Anatomy and physiology, descriptive and operative surgery, materia medica and therapeutics.

Fourth Day (5 hours)—Pathology, practice of medicine, horseshoeing.

Fifth Day (5 hours)—Meat inspection, veterinary hygiene, equitation.

Sixth Day—Physical examination.

Sample of questions :

Anatomy.—Describe the digestive apparatus ; urinary apparatus.

Physiology.—Describe and give functions of the solid organs in the abdominal cavity. How long does food remain in the stomach of solipeds ?

Surgery.—Etiology, pathological lesions, descriptive anatomy, diagnosis and treatment for pus in the guttural pouches. Operation for poll evil, lesions, anatomy, diagnosis, treatment, operation, also cause.

Materia Medica.—Questions on the alkaloids, doses, etc.

Practice of Medicine.—*Ascaris megilocephalis* in the horse, description and its effects. Pinkeye, its cause, diagnosis, incubation, duration, treatment, inoculation, etc. Contagious pustular stomatitis, its cause, diagnosis, treatment and prevention.

Meat Inspection.—Pretty nearly the whole subject.

Sanitary Medicine.—Contagious diseases affecting the horse, their eradication, steps to be taken on discovery, disinfection, etc.

Veterinary Hygiene.—Air space in stables, ventilation, selection of camps, watering and feeding.

Conformation.—Examination for soundness. Outline of a good cavalry horse, ages from 4 to 10 as indicated by teeth, giving diagrams. External form to be illustrated by diagram.

Equitation.—Saddling, biting, riding, packing saddle, centre of gravity, etc.

Horseshoeing.—Care of feet, application of shoe, preparation of foot, Charlier shoe, Fitzwagram shoe, ordinary shoe, hot and cold fitting.

Pathology.—Inflammation, necrosis, emboli, thrombi ; post-mortem examination, how made, lesions to be looked for and where.

These are a few of the technical questions given from memory, as it was requested by the authorities that the questions be not copied, and a request in the military service is equivalent to an order to a good soldier.

The questions on the graded subjects could be readily answered by those possessing a public school education, and were of course practicable.

The Washington board consisted of three cavalry officers and one veterinarian. I do not know who the latter gentleman

was, but I will say here and without fear of successful contradiction that he very thoroughly understood his business, and has the knack of finding out in a surprising manner the standing of a candidate professionally: the questions were all clear, concise, practical and to the point, and if a candidate tried to evade the issue on one subject he was sure to encounter in another subject something to test his metal along the same lines; those who fell by the wayside cannot blame the clearness of the questions asked, neither can they call into question their practicality.

After a fight of twelve years the battle is nearly won, the profession is obtaining that recognition which is its of right, and it devolves upon you and I to maintain its dignity and its honor, and to still continue to battle for its advancement. The memory of poor Treacy, who died in Cuba after passing a splendid examination, will always be a stimulus to those of us who are always looking onward and upward in the profession, and cause us to still persist in our efforts until the pinnacle is reached. While on this subject I cannot refrain from mentioning the name of that true and tried veterinarian, Dr. D. E. Salmon, without whose leadership and energetic work progress would not have been made, and to whose integrity of character and methods of administration the profession in this country owes so much to-day.

In conclusion, I trust that this little production will be the means of impressing on the grey matter of some that in the army, above all other departments, there is no favor shown, and that those who have entered, as well as those who are about to enter it, have been and will be appointed on their merits.

GERALD E. GRIFFIN,
Vet., 5th Cavalry.

A LETTER FROM DR. LIAUTARD TO THE ALUMNI OF THE
A. V. C.

PARIS, Sept. 24, 1899.

To the Alumni of the A. V. C.:

DEAR FRIENDS:—By our journals, I was made aware that the greatest efforts were being made to make the 36th annual meeting of the A. V. M. A. the most imposing gathering of veterinarians that had ever taken place in the United States; and that, taking advantage of the occasion, the Silver Anniversary of the A. V. C. was to be one of the events of this great jubilee.

By the kindness of your President, in a letter received late in August, I was also warmly requested to be present, as I was to be the object of a reception on that occasion.

The late hour at which this was received, with unavoidable circumstances, and the official obligations I had to meet at the Seventh International Veterinary Congress at Baden, did not leave me sufficient opportunity to prepare, and to this effect I notified Dr. Pendry, addressing through him, the Alumni, tendering my best wishes for all.

Toward the end of September, in the REVIEW of that month, I read with surprise in the friendly remarks of my friend and co-editor the first information of the presentation of which I was to be the object. But now I have received from many of our friends letters telling me what has taken place in the celebration of the anniversary, describing the beautiful token that waited for me, giving the names of all that inquired about me, and speaking of their disappointment at my absence.

To describe all my feelings at the reading of all these events, is beyond my power. My heart is full with joy and pride at the kindness and marks of affection given me by the Alumni, and at the friendly words of many of our colleagues, but my eyes are filled with tears at the thought that I have disappointed so many.

It is, then, not only a letter of thanks and of the full appreciation of the honor you have conferred upon me, that I address to all my old students, it is one of everlasting regrets that, while so far from them, I have for once failed in the performance of a duty when the American veterinary profession demanded it.

Let me, however, say to you all: Thanks, and many of them. The handsome token you have offered me, I accept, not as being so much for the man as for the bearer of the flag of our dear profession, which I have tried to hold high and foremost for so many years. And now, far from you, although I still entertain the hope of returning to you soon, let me assure you that this valuable token will for ever remain to me the greatest reward that I could ever expect in my professional career, even if my joy should remain marred with my regrets of having been unable to tell you, *viva voce*, how the old man feels at this proof of love from *his boys*.

With my best wishes for you all, and, once more, thanks, I remain, as ever, your sincere friend and old dean,

A. LIAUTARD.

WHAT HAS BECOME OF THE ASSOCIATION OF VETERINARY FACULTIES?

FLUSHING, N. Y., Oct. 24, 1899.

Editors American Veterinary Review:

DEAR SIRS:—In your report of the meeting of the American Veterinary Association, in your last issue, I fail to see an account of the meeting of the Association of Faculties. Has there been no meeting? Secretary Merillat promised us that the coming meeting would not be held "behind closed doors as in former years," and that the doors would be open to everybody. As I have been one of the early members of this association, when we made no promise, but have done some work, I was anxious to see the progress made by our successors, and I had something to say, too. But to my inquiries about the place of meeting I received only a significant smile. I am a believer in the usefulness of this association, because there are yet problems which it has to solve in the future development of our American colleges. In order to accomplish this, it appears that our old, experienced members, who are men of ripe judgment, should rally in the coming meetings, even if the doors are closed behind them. Myself and others would be pleased to know who are the officers of the association for the ensuing year, that we might give them encouragement for a very needy cause.

Yours, etc.,

OLOF SCHWARZKOPF.

TO DETECT TUBERCLE BACILLI IN EXCRETA.

MANCHESTER, N. H., October 15, 1899.

Editors American Veterinary Review:

DEAR SIRS:—I have been working on various methods whereby I could detect tubercle bacilli in various fluids and excreta and have been able to devise a method which is simple and does away with the long and tedious methods so much used. My methods are as follows: In the case of sputum all that is necessary is to shake the sample procured from the patient up with an equal bulk of 5 per cent. carbolic acid and allow it to stand for a few minutes; the sedimentation is very rapid and one is able if any bacilli are present to always find them. The old method was to look for small flocculi, but sometimes food in small particles were mistaken for the tubercular flocculi. In the case of milk an equal quantity of distilled water added to the milk, well shake the mixture, allow it to sediment, and examine. I have had excellent results with the above methods, and trust you will kindly publish the methods in

your REVIEW for the benefit of my brother practitioners.
E. W. HAMMOND, D. V. S. (*McGill*, '99.)

IODIDE OF POTASSIUM IN AZOTURIA.

PETTISVILLE, OHIO, Sept. 28, 1899.

Editors American Veterinary Review:

DEAR SIRs:—I wish to say I have tried potassium iodide in azoturia with good results. In some cases I find benefit by joining bromide of potassium with the iodide. I would like to hear from others on this treatment.

WM. R. CLARKE, V. S.

SOCIETY MEETINGS.

MISSOURI VALLEY VETERINARY MEDICAL
ASSOCIATION.

(Continued from page 527.)

Dr. H. J. Washburn being next called upon, responded with the following paper, entitled

“BIOLOGY OF PATHOGENIC MICRO-ORGANISMS.”

The subject under our consideration is not new, although most of the discoveries pertaining to it have been made since 1881. In the meantime a vast amount of work has been expended upon investigation into the life history, habitat, and pathogenic properties of the various microbes.

It is certainly unnecessary for me in this company to undertake to establish the relations existing between certain forms of bacteria, and certain diseases, or, in other words, to attempt to uphold the bacteria theory. There are plenty of people living to-day who scoff at the results of scientific research along this line, but I do not expect to find any of them here. We who have carefully raised cultures in the laboratory, and have watched the effect produced upon laboratory animals, by inoculation from these cultures, and have then brought our valuable assistant, the microscope, to bear upon the tissues of these animals at post-mortem, are left with but little room for doubting.

These minute forms are subject to the great rule of life which biology teaches us applies to all living things. They are born, they grow, they reproduce and die. Like members of the human family, they affect those of their fellows with whom they come in contact, either to their improvement or injury, and tak-

ing into consideration the time required for the completion of their life cycle, they certainly work out less destruction individually than some of the reasoning animals, who are subject to the same biological laws.

Micro-organisms are of great interest to the veterinarian, and every discovery that relates to their life history, or to the effects produced by them within the tissues of the higher orders of animals, is sure to be a help in understanding the course of the disease produced by the particular form under consideration, it must produce more satisfactory results from treatment given such patients, and leads us to more effective prophylactic measures.

After reading a work on bacteriology for a time, one is apt to think that every one of the numerous fleshly ills must be caused by some form of microbe, and we feel that the proper thing for the medical fraternity to do is to wage a war of extermination against the entire list of unicellular life. It is well not to be too hasty. Further research will show us that only a small percentage of bacteria are harmful, the greater part being not only harmless but of the greatest value to the advanced forms of life. Leaving the useful ones, we will confine ourselves to those that produce discomfort, disease or death, when introduced under favorable conditions into the animal economy. These are the pathogenic micro-organisms, and nearly all of them belong to the vegetable kingdom. They are usually grouped from a strictly morphological standpoint, but it would suit the requirements of the investigator into pathological conditions far better were they grouped according to their effects. It is well to know what is meant by bacilli, cocci and spirilla, but it is better to know what to expect from the various members of these groups.

As a rule it may be stated that their deleterious effects are due to poisons produced by them, but there are a few exceptions. The *bacillus anthracis* often produces its most serious effects through the remarkable rapidity of its reproduction, and the consequent gorging and choking of the vascular system, rather than by direct poisoning.

Pyogenic cocci may act in the same way.

Of the various diseases due to micro-organisms, hog-cholera brings the greatest money loss to the stock-owners of the country; tuberculosis is the most feared by the well-informed, and rabies, assuming its cause to be a germ, is the most capable of filling the minds of the masses with a vague dread and terror.

Hog-cholera may serve us as a type of the severest bacterial

disease which affects our domestic animals. Here we observe the characteristic fever, inflammation of digestive and respiratory organs, hæmorrhagic lesions, and affected secretory surfaces.

Severe indeed must be the suffering of a "cholera" hog.

One who has lived through an attack of typhoid fever cannot for a long time afterwards notice a hog with well-developed cholera without a returning realization of the suffering then endured. The poor hog plainly gives evidence of suffering from the same headache, the same dull, aching, watery, sticky eyes, the same intense fever, dysentery, painful micturation, with their accompanying anorexia and disinclination to move. And why should he not? The bacillus of hog-cholera and the bacillus typhi abdominalis are very like in every way. They grow readily in the laboratory upon the common culture media, making a most luxuriant growth upon potato. They may be propagated with equal facility in milk, and it matters not whether this milk is in the incubator of a laboratory or in a crock on the pantry-shelf. The colonies present macroscopically a dense centre with attenuated borders. There is nothing very characteristic or interesting in this, but just examine some well-prepared sections from this colony under a good microscope, and how very quickly the whole scene changes. Of all the crazy scurrying crowds, the one now brought to view takes the cake. They are described in the text-books as actively motile, and they thoroughly warrant such description. Each one hustles across the field in tumultuous haste, as though he believed a "bad black man" was right after him. No wonder that these organisms permeate the entire body of their victim, or that death so often steps in and ends their journeying.

Hog-cholera is one of the true septicæmic diseases. The organisms enter the general circulation and are conveyed to all vascular parts of the body. This advantage once gained, they multiply rapidly and cling to the vessel-walls wherever they are able to do so. They often gather in such numbers as to form plugs in the blood capillaries which result in hæmorrhages. They lodge in the lymph-glands, in the capillary plexuses of the lungs, along the intestinal walls, and wherever lodged they produce their toxic excretions.

This organism offers extreme resistance to the effects of cold. Freezing does not seem to destroy it. Hence, we must conclude, that it is unsafe to depend on freezing wintry weather to stop an outbreak of cholera.

The theory has been advanced by Gaffky that these typhoid

infections "must always occur through the mucous membranes of the intestines: even when the poison seems to have been inhaled." He thinks it is caught on the mucous membranes of the pharynx, swallowed, carried through the stomach and thus brought into contact with the intestine. From this point it enters the circulation and invades the lungs and other organs.

Leaving these organisms, let us briefly observe the action of the *tubercle bacillus*. This seems very reluctant to grow where it can be scrutinized at will by students. It is evidently too modest and retiring. It requires a specially prepared medium of blood serum or glycerine agar, and will not grow satisfactorily on the common bouillon, agar-agar or gelatine. It prefers blood serum, probably because this contains some element favorable to its growth, which the others lack.

Until very recently it has not been discovered, leading a saprophytic existence, but the claim is now made by a scientific searcher living in southern France that he has discovered this bacillus living on some of the coarse swamp grasses growing near his home. We will, however, await with interest further developments of this discovery.

Its growth in the laboratory, even upon its preferred medium and under the most favorable conditions known, is so very slow that unless the culture is strictly pure the differing organisms at once outgrow and destroy the specimens sought. For this reason several careful transplantings are advisable. This manner of growth is still characteristic of them after they have obtained a lodgment in one of the higher animals. The progress of the disease is insidious, slow and evasive and much time is required for a colony of them to become sufficiently scattered about as separate spots of death to cause their presence to be indicated by their host. Their action upon the tissues is purely toxic.

It has been suggested that some scrofulous conditions in the human subject may be due to a mixed infection, cocci having been inoculated with the tubercle bacilli. I would offer as a suggestion to those who may be in a position to experiment that possibly a method of curing recently established cases of tuberculosis might be found by making use of the troublous experiences of the laboratory worker and allowing some rapidly growing and at the same time less destructive organism to overgrow and destroy the bacilli within the living body. The fact that the introduction of certain forms of bacteria into a system previously infected with other forms will kill one or both is well proven. Green, in his "Pathology," says: "Recent experiments

have shown that two microbes growing in the body may successfully oppose each other. Thus if erysipelas cocci be injected under the skin and into the blood and if a large dose of anthrax bacilli be introduced 24 hours afterwards, so that a large number of the cocci are present at the time of infection, the anthrax bacilli will all die out in 17 to 24 hours without causing even local œdema." The bacillus pyocyaneus is also antagonistic to the bacillus anthracis. An animal may be inoculated with a virulent anthrax culture and if this be soon followed by an inoculation from a culture of bacillus pyocyaneus the life of the anthrax bacillus is quickly destroyed.

So far as I have been able to learn, the cause of rabies has not been positively identified. Some bacteriologists, in their efforts to get ahead of their fellows, have declared positively that their research has been rewarded and that they have succeeded in locating the long desired germ. But the amusing part of it is that no two of them agree on a description. One insists that it is a long rod like bacillus, another that it is short and blunt, but still a bacillus, while others have described it as a diplococcus. It has been variously proven to be motile and non motile, aerobic and anaerobic, existing in the blood and not so existing. But as rabies is probably due to a germ, I will mention it here. The virulence—whatever it may be—is transmitted by the saliva, tears, milk, nervous tissues, etc., of the rabid patient, but never by the blood.

As I said earlier, rabies, more than any other of the diseases of the domesticated animals, fills the popular mind with dread and terror. What will be more anxiously or rapidly passed from mouth to mouth throughout a community than the reports incident to a "mad dog scare"? This is one disease that it is unnecessary for any civilized land to harbor. A strict control of all dogs in the country for a season would readily exterminate rabies. This subject is being agitated somewhat in some of the eastern sections of the United States. Federal control of all dogs for a short time, and the relentless destruction of all vagrant dogs is suggested as a feasible way of ridding the greater part of the country of rabies for all time. Of course there would remain danger from wolves, foxes, etc., in certain sections, but outbreaks from these sources need not spread far. I am wandering from my theme. This is not bacteriology.

The *tetanus bacillus* is another to claim our notice. It grows normally in rich garden soil and may be said to invade the animal system only by accident. For a long time all attempts

to grow it in the laboratory were futile. Countless attempts were made, all sorts of media were tried, and various temperatures, but the results were unsatisfactory. At last a culture was placed in a hydrogen atmosphere and then it was found that the tetanus bacillus would thrive upon the common media and at a variety of temperatures. It was anærobic. In raising cultures of this bacillus the culture medium should be given a greater degree of alkalinity than is supplied to other varieties. The reaction may be quite decidedly alkaline. The growth of the colony is somewhat slow. They take the form of a dense round centre with many delicate radii. A small amount of gas is produced as they grow and a most intense poison as well. The presence of the bacillus is not necessary for the production of tetanus in animals. All that is required is the poisonous product that they furnish. Injection of animals with such product from a laboratory culture produces death from tetanus as quickly as though the living organisms themselves were introduced and the symptoms and course of the disease are the same in either case.

From the laboratory growth of this bacillus we may learn at least two things. All wounds where the infection with the tetanus bacillus is suspected should be opened with a bold incision so as to admit air freely. Secondly, this should be done quickly as the tetanic spasms are dependent upon what seems to be a fermentative action rather than upon the production of large numbers of microbes within the system.

In marked contrast to this organism is the growth of the *streptococcus pyogenes*. In the laboratory this microbe grows readily at first. It is easily started and the colony soon presents a thriving appearance. But it soon seems to be receiving a check to its growth and to be losing its vitality. The cause is this. As it grows this colony excretes an acid which liquefies the adjoining bouillon and is rapidly fatal to the growing parasites. This results in the laboratory in inevitable death to the organisms; a sort of unavoidable suicide. They kill themselves and cannot help it. Introduced into our patients the case is different. Here the blood current supplies fresh food for them and removes the objectionable acid. This coccus is the great secondary invader. It follows surgical operations and is the cause of spreading phlegmonous, erysipelas, septicæmia, pericarditis, peritonitis, etc. This and the staphylococci are excellent organisms for the beginner in laboratory culture to attempt to grow. They start to grow quickly, are not over par-

ticular as to the quality of the culture media supplied them, will bear transplanting well, and are not dangerous to have on clothing or utensils in case the operator clumsily breaks his glassware while cultivating or examining his growing colonies. They are much safer than the *bacillus anthracis*, which will next receive our attention. This bacillus is the best known of all bacteria. It was the first to be positively identified as a specific cause of disease. It has been the subject of continuous experimentation. It makes a ready growth upon any of the common media. The rods extend longitudinally as the colony of a thrifty culture grows, until they form long filaments, which weave and twist themselves together so intimately that a large section from the culture may sometimes be lifted with the needle, and where the culture is forcibly divided the torn edges always present a very ragged appearance. The chief danger from the *bacillus anthracis* seems to arise when spores have been formed. Referring to this transformation, Ostertag says: "Of the greatest interest is the knowledge of the conditions most favorable to the sporulation of anthrax bacilli. Anthrax spores are only produced in the presence of a liberal supply of acids and under suitable conditions of temperature. The limits of favoring temperatures being 18°C . and 34°C ., the most favorable being 30°C . But they will neither in the living animal body nor in the unmutilated carcass form spores. Once the spores are formed, however, they become a serious menace to all animal life that may come in contact with them. They will live for a long time in the earth or in stagnant water. Consequently low swampy places and especially those that are subject to occasional overflow, are often in certain districts charged with anthrax spores for months and even years at a time. These spores though inactive are alive and if again placed under favorable conditions each spore will develop into a mature anthrax cell and this cell in turn will rapidly multiply until myriads are produced. Another of the motionless microbes and one that is likewise dangerous for inexperienced parties to handle in any way is the *bacillus mallei* or the glanders bacillus. It grows better if the temperature of the incubator is kept rather low. As I have never grown any of the glanders bacilli I will allow Abbott to furnish the following paragraph: "Its reactions to heat are very interesting; at 42°C . it will often grow for twenty days or more. It will not grow at 43°C . and is killed by exposure to this temperature for forty-eight hours. It is killed in five hours when exposed to 50°C . and in five min-

utes by 55°C . It grows both with and without oxygen; it is therefore facultative as regards its relation to this gas." Its action upon the tissues is quite similar to that of the tubercle bacillus already mentioned, except that it acts far more rapidly and the necrotic areas caused by it are characterized by a considerable formation of pus.

Before closing I wish to call your attention to a parasite noticed in a recent number of the *Breeder's Gazette*. The inquiry stated that the hogs in a certain section of Kentucky were at that writing affected with "a parasitic disease causing swelling of the lower jaw, eruptions on nose, which enlarge until skin breaks, leaving the nose raw. After this the disease assumes the nature of a cancer. The nose rots away, the pig gets thin and weak and dies." The reply was as follows: "This trouble is caused by a parasite resembling that of mange and whenever it exists a poisonous matter seems to be produced." As any parasite answering the above description is a total stranger to me I mention this here, hoping that any of you who have ever met him will hasten to introduce us.

This touches briefly a part of the pathogenic micro-organisms. Many interesting forms are left unmentioned.

Many questions relative to the subject which we would like to have answered, are still waiting for farther investigation, and there is still room in this field for careful experimentation and for earnest study and thought.

DISCUSSION.

Dr. Stewart: We certainly have had the pleasure of listening to an exceedingly interesting paper. To one who is not familiar with the problems presented they may seem somewhat difficult, but the author of them has made the understanding of them more easy. There were some points brought out in the paper which were somewhat new to me or at least somewhat different than I have been accustomed to think of them, and I would be very much pleased if the author would make some explanation before the discussion of this paper is closed. If I remember correctly, the author stated that a variety of the micrococci behaved in the animal economy like anthrax bacilli; that they multiplied in the blood stream and adhered to the vessel walls, producing thrombi or infarcts with hæmorrhage into the tissues. As I understand it, the ordinary micrococci do not multiply in the blood stream, nor do they produce capillary hæmorrhages. The author classed hog-cholera as a variety of septicæmia and this would seem a rather unusual classification.

Many authors hold that one of the constant lesions found in septicæmic disease is enlargement of the spleen. I have seen many cases of what I term hog-cholera, in which there was little or no splenic derangement, yet I will admit that in some cases of hog-cholera the spleen is enlarged. We have with us this evening one who is thoroughly posted on the subject, and I shall be pleased to have his idea as to the classification of this disease. I refer to Dr. Peters, of Nebraska.

Dr. Peters : Mr. President and Gentlemen : This is a pretty hot evening, but I must say that I have listened very intently to the Doctor's paper and enjoyed it very much. This is the first time that I can remember of a paper being read where I attended where they did not say something about swine-plague. The matter treated is very good. What the Doctor has said about the hog-cholera bacillus meets with my approval. I heard him quote my old friend Gaffky extensively, and I can assure you that with the exception of Drs. Smith and Shutz, of Germany, no others have done as much thorough work. Now, the inspectors that are here this evening see hog-cholera galore. They have their ideas. The Doctor gave you a very good idea of the bacillus of pneumonia. I am very sorry that he did not say something about the swine-plague bacillus. May be it is well that he did not, because I believe that the time has come when we do not want to say too much about swine-plague. If I were to get to talking on hog-cholera and go into details, I think some one would have to ring a bell, as I would not know when to stop. There is probably no problem that confronts the sanitarian so forcibly as the question of hog-cholera. What can we do? I suppose that you are all aware that the State of Nebraska for the last ten or twelve years has made an attempt to do something to relieve the stockmen. Our State and the Bureau of Animal Industry have done a great deal of good within the last two years with antitoxine. There are many questions relating to this serum work that need to be taken up and perfected, and I think that they will be in the near future. But the Doctor has very clearly demonstrated in his paper how the hog-cholera bacillus grew and how you can detect it, and if any one wants to make a culture, follow his directions. Dr. Stewart has touched a very good point, and that is in regard to septicæmia and pyæmia. He has explained that, so I shall not do it. In regard to hog-cholera being a hæmorrhagic septicæmia I must say that I class it as such. I cannot put it in any other group.

Dr. Blackwell : Dr. Washburn mentioned something about

an outbreak amongst hogs in Kentucky in which the jaw was affected. We have not heard anything on that question. I would like to hear from Dr. Peters.

Dr. Peters: That is a very interesting disease, and I think it is a variety of mange. We made some two hundred examinations of cases found in Nebraska, and we believe it is a parasite.

Dr. Stewart: Dr. Paul Fischer, of the Kansas State Agricultural College, investigated a peculiar contagious disease affecting the external genitals of cows. Dr. Conrad saw a number of cases of it. Dr. Fischer reported that he was able to get a culture of a vegetable organism, a trycophyton. He inoculated it in heifers and succeeded in getting the characteristic pathological lesions. It occurred to me as a new rôle for the larger organisms.

Dr. Conrad: This disease was limited to a small area. I saw it in two bunches of cattle and have not heard of any being reported from other points in Kansas.

Dr. Peters: There was one outbreak where eight animals died. The peculiar part of it was, that they were all black cattle, and the vagina was involved. The vagina was very highly inflamed, but I could not tell what the disease was; they would linger about three or four days and then die. I could not do anything with it.

Dr. Washburn: In reference to the matter of micrococci multiplying in the blood stream like the anthrax bacillus I would say that this was demonstrated to us in our school as occurring when a virulent and thrifty young growth of the germ was inoculated into the guinea-pig.

On motion, the meeting then adjourned.

JAMES S. KELLY, *Secretary*.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was called to order at the New York Academy of Medicine, Oct. 4, at 8.30 P. M., President Robertson in the chair. The following named members responded to roll-call: Drs. Ackerman, Bell, Clayton, Delaney, Ellis, Goubeaud, Hanson, MacKeller, O'Shea and Robertson. The minutes of the June meeting were read and approved.

Reports of Committees.—Dr. Clayton not having arrived at this time, the Board of Censors report was deferred until later.

Reading of Papers.—Dr. Goubeaud then read a paper entitled "A New Theory as to the Etiology of Shoe Boil,"* setting

* Will be published in an early issue.

forth entirely new views as to its causation. This paper was very freely discussed, and at considerable length.

Reports of Special Committees.—Dr. Bell, chairman of Ways and Means Committee, reported that so far as entertainment was concerned, they were prepared to furnish material for each succeeding meeting, as they had been doing in the past, always one and where possible two papers at each meeting, and that they also considered it a part of their function to look after the financial interests of the association in so far as they could do so, and as the treasury was not full, they suggested that the association change its place of meeting to the lecture room of the New York-American Veterinary College, 141 W. 54th Street, having been offered the room free, including heat and light, by the owner of the building, the same being put in the form of a motion, as follows: "Moved that the meeting place of this association be changed from the New York Academy of Medicine to the building of the New York-American Veterinary College, 141 W. 54th Street." Seconded. Carried.

Report of Committee on Entertainment of A. V. M. A.—The treasurer of this committee, Dr. Bell, in the absence of the chairman, Dr. Gill, gave first a financial report, and then a general report, in which he stated that the meeting of the A. V. M. A. had been a grand success, the largest, in fact, that had ever been held in the history of the association. Moved and seconded that Dr. Bell's report be accepted. Carried.

Moved by Dr. O'Shea, that a vote of thanks be tendered to Dr. Goubeaud for his interesting and original paper. Seconded. Carried.

The following notice was then handed in to the Secretary, to be read at the meeting, and incorporated in the minutes:

"We hereby give notice of an intention to move at the November meeting, for a change in the By-Laws, Article XI, to read as follows: 'The initiation fee shall be five dollars, the annual dues shall be two dollars.'"

Signed, ROSCOE R. BELL.

ARTHUR O'SHEA.

Moved and seconded that the meeting adjourn.

ROBERT W. ELLIS, D. V. S., *Secretary*.

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

The seventeenth annual meeting of this association will be held at the Sherman House, Chicago, November 15 and 16, 1899.

NEWS AND ITEMS.

DR. E. HANSHEW, of Brooklyn, was gunning for the caribou and other large game in the Maine woods during October.

MANUFACTURERS are at sea as to the proper name for horseless machines. *The Stable* suggests "auto-go."

THE AMERICAN PUBLIC HEALTH ASSOCIATION meets in Minneapolis October 30 to November 3, inclusive. Minneapolis is anticipating a very large attendance.

DR. E. L. VOLGENAU, Inspector in charge of B. A. I., stationed at New Haven, Conn., was united in marriage to Miss Jessie K. Bernhardt, of Buffalo, N. Y., Wednesday evening, October 11.

DR. THOS. CASTOR, microscopist for B. A. I., stationed at Buffalo, N. Y., was recently transferred to Indianapolis, Ind., Chas. Bullard, of Boston, supplying his place in Buffalo.

A VETERINARIAN reports good results from injections of the tincture of iodine as a substitute for the firing iron in cases of periostitis, especially incipient ringbone.

DR. GEORGE H. BERNS, of Brooklyn, N. Y., has recently added to his infirmary an extensive and very complete canine ward, with operating room and table, steam and drying rooms, and other conveniences.

THE NEW YORK-AMERICAN VETERINARY COLLEGE opened its first session on October 2 with about forty students, and with the largest number of veterinarians in its faculty of any school in this or, perhaps, any other country.

DR. M. H. REYNOLDS attended, as an official delegate and representative of the Minnesota State Board of Health, the annual meeting of the Interstate Association of Live Stock Sanitary Boards held at Chicago on October 11 and 12.

DR. AUSTIN PETERS, of Massachusetts; Dr. Pearson, of Pennsylvania; Dr. Eisenman, of Kentucky, and Dr. Reynolds, of Minnesota, were in attendance at the recent meeting of the Interstate Association of Live Stock Sanitary Boards at Chicago.

THE WASHINGTON HUMANE SOCIETY passed a resolution at its October meeting condemning the action of the Committee of Arrangements of both the New York and Washington receptions to Admiral Dewey in providing docked horses to draw the carriage of the distinguished guest.

TO EXAMINE ARMY VETERINARIANS.—On October 26 Major Henry Jackson and First Lieutenant Ervin L. Phillips, Third Cavalry, were detailed as members of the board at Wash-

ington for the examination of applicants for appointment as veterinarians in the cavalry service.

DR. H. D. STEBBINS, West Winfield, N. Y., would like to get No. 8 of Vol. XVIII (November, 1894). If any reader has a duplicate of that number, please communicate with the doctor, or with this office. He says he "can't get along without the REVIEW."

ONTARIO VETERINARY COLLEGE.—This college opened its halls for the admission of students on Wednesday, October 18th, the opening lecture being delivered by Principal Andrew Smith. The prospects for a prosperous session are very favorable, a large number of freshmen being present from the United States as well as from Canada. Most of the undergraduates have returned.

Dr. WM. N. D. BIRD, of the Bureau of Animal Industry, read a paper before the West Tennessee Farmers' Institute, in September, on "Contagious Diseases of Cattle." The *Tennessee Farmer* of Sept. 30 printed the contribution in full, with illustrations, and said that it was well received and proved of great interest, especially to the cattle raisers in view of the prevalence of Texas fever in that State.

A TUBERCULIN TRICK.—The Philadelphia *Medical Journal* asserts that certain breeders and dealers in cattle have been taking advantage of the recognized fact that animals tested with tuberculin will not respond to a second test for some days after fever symptoms have abated. The "trick" is to inject tuberculin at regular intervals so inspectors or buyers will get no unfavorable reaction to their tests for tuberculosis.

JOIN THE NEW YORK COUNTY ASSOCIATION.—Now that this association is to move into inexpensive quarters, it is likely that the annual dues will be reduced to two dollars. This will remove a barrier in front of many young members of the profession, which should result in a liberal addition to the active membership. This association could be made the best in the land, and we sincerely trust that the veterinarians of the Metropolitan district will realize the opportunities it affords.

MANY HORSES AND MULES LOST IN TRANSIT TO MANILA.—Dispatches from Manila announce the loss of over 300 horses and mules on the steamer *Siam*, during the prevalence of a severe typhoon northeast of Luzon. Pitching of the vessel and deficient ventilation resulting from necessary closing of the hatches killed nearly the entire cargo of less than 400 animals. The dispatch adds that this loss will be seriously felt by Gen.

Otis, who needed the animals for transporting army supplies to points held by American troops.

AMERICAN HORSES IN LONDON.—According to W. H. Wray, D. V. S., London, inspector for the U. S. Bureau of Animal Industry, that city is a liberal buyer of American horses. The tramways have over 4000 horses, three-fourths of which are purchased in the United States and Canada, costing about \$170. One-seventh of these are yearly discarded, or worn out, and sold for about \$55. The London Road Car Service purchases about 1000 fresh horses yearly at prices ranging from \$180 to \$210. The General Omnibus Company requires as many horses as both the car companies, and pays for them \$180 to \$230.

MEDICATED HEN EGGS.—When the claims of chemistry shall have been even partially secured, then truly can "old-timers" aver that the world has reached an age of wonderful progress. Among the latest developments of the science is the alleged discovery by a French chemist that salt of iron prepared by a formula of his discovery can be mixed with the food of hens so as to become incorporated in the albumen of their eggs. In this manner beneficial results following the use of an iron tonic are to be brought within reach of sufferers whose stomachs are too weak to assimilate medicines as heretofore prepared. All of which may be written down as "important if true."—(*Breeder's Gazette*.)

MEAT INSPECTION AT DENVER.—Recently Dr. Carlin, head of the Denver Health Department, publicly charged that the meat from cattle suffering from black-leg, tuberculosis and other diseases, had been sold to unsuspecting customers by meat dealers in that city. This assertion has called forth a strong protest signed by the heads of fifteen prominent establishments, in which they assert that "there is not a grain of truth in the matter," and furthermore offer their assistance in demonstrating that only the best meats are sent out by them. They also express their willingness to aid the business of official inspection of animals and meats in any reasonable manner. Attention is called to the fact that the inspector now on duty has more work than one man can properly attend to, and the suggestion is offered that all interests would be promoted by the appointment of an assistant inspector.

FRAUDULENT HOG-CHOLERA NOSTRUMS.—A bulletin recently issued from the Indiana Experiment Station calls attention to the operations of certain parties claiming to have a so-called "serum" and other concoctions which they are vend-

ing as preventives and cures of hog-cholera. It is stated that as a result of "treatment" by these impostors cholera is being introduced into herds and neighborhoods previously exempt, and consequently the public is warned against giving them countenance or patronage. The bulletin adds: "Reports have also been received that agents of cholera medicines in White, Warren, Pulaski and Fulton Counties claim authority to sell goods recommended by the station, and agents in Marshall and Kosciusko Counties claim to be agents of the State Board of Agriculture. All agents making such claims in any part of the State are frauds and should be prosecuted."

BEES STING A HORSE TO DEATH.—A fine young driving mare of Dr. J. T. Twilley was stung to death by honey bees in Kent county on Wednesday. The animal was turned into a lot to graze in which was a bench of eight hives of bees. One of the hives was knocked over, and in an instant the mare was covered by the bees. She became entangled in a quantity of vines in such a way that she could not extricate herself, and began to roll to free herself of the bees, which swarmed on her body. This only made matters worse, and resulted in overturning the entire bench of eight hives, the bees from which completely covered the helpless animal. She lived about eight hours and died in great agony. Handfuls of bee-stings were combed from her hair and pulled from about the nose, mouth and eyes—in short, there was scarcely a square inch of the animal's body which had escaped a wound from the bees.—(*Chestertown (Md.) Transcript.*)

EFFECT OF DYNAMITE ON COWS.—Henry Frost, living near Dunn's Chapel, is minus two cows and a quantity of dynamite. He turned the cows out to water one evening last week, and waited for them to come up the lane from the creek, as was their habit. The cows were seen coming back, but in a very unsteady and wavering fashion, staggering and tumbling about into the wire fence and down off the road. All five cows finally got down, and you can imagine Mr. Frost's feelings. What they could have eaten that would produce such symptoms, was the question. All at once it dawned upon Mr. Frost that they might have eaten some dynamite that for eighteen months had been covered with a phosphate sack, surrounded and partly covered with some lumber in a corner of the pasture. Upon investigation it was found that part of the dynamite was gone, and the remainder was scattered around, and showed evidence of having been partially chewed. Dr. S. R. Howard was imme-

diately called, and antagonists given to mitigate and arrest the effect of the nitro-glycerine, of which dynamite is largely composed. Three of the cows were saved. One was dead before the doctor arrived. The effects of nitro-glycerine upon the human and animal economy are something wonderful. Two or three drops of one per cent. solution is a full medicinal dose for a human. Dynamite is a mixture of nitro-glycerine and some bulky substance, such as earth, sawdust, etc. The taste of nitro-glycerine is at first sweetish, followed by a not unpleasant pungency. In poisonous doses it very quickly produces, in animals, giddiness, staggering, headache, a violent and tremendous beating of the heart, followed by languor, dilation of pupils, rapid and weak pulse, coldness of extremities, twitching movements, hiccoughs, fainting, coma and death.—(*Hillsboro, O., Gazette.*)

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To complete my file I would like to secure No. 8, Vol. XVIII of the AMERICAN VETERINARY REVIEW. Any one having an extra copy of that number please address H. D. STEBBINS, V.S., West Winfield, N. Y.

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In making up my REVIEWS to be bound I am short of the following numbers: Vol. XIII, July, September, October (1889). As I cannot obtain these from the publishers, I will give the regular rates or a slight advance, or will exchange any of the following which are duplicated in my file: Vol. XIV, October (1890); Vol. XIX, February, March, and April (1896). Address ROBERT W. ELLIS, D. V. S., 509 W. 152d Street, New York City.

AMERICAN VETERINARY REVIEW.

DECEMBER, 1899.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

THE BARNACLES GATHER.

But three months ago, while the National Association was in session in New York, and the members were indulging in many adjectives to describe the great progress being achieved by our profession, and the high educational standard to which we had arrived, the REVIEW was called upon to record the establishment of a two-year so-called veterinary school in Tennessee, with a faculty containing a number of veterinarians, some of prominence, but who announced that their names had been used without their knowledge or consent, and at once forbade their further employment. In so short a time as the present we find ourself in possession of the prospectus of the "San Francisco Veterinary College," located at 510 Golden Gate Avenue, in that Western metropolis. It was chartered in 1899, and "incorporated under the provisions of Part IV, Title XVII, of the Civil Code of the State of California, May 22, 1899." The calendar reads as follows: "Monday, June 5, 1899, session opens; July 3 and 4, 1899, holiday; Monday, Nov. 27, 1899, final examinations commence; Monday, Dec. 4, 1899, commencement." "The course of study covers two collegiate years of six months each, beginning the first week of June and ending the first week of December." The announcement further states that "it will attain a high standing among educational institutions, and is endorsed by the veterinary and medical professions." Just how the dissecting room is to be arranged is

not stated, but it is likely that the students will have to be placed on cold storage during the hot summer months.

We sincerely believe in the claims of veterinarians that our profession is making great strides in closing the gap between us and other advanced sciences, and the statement becomes more marvelous when it is reflected that there are so many elements tugging in the opposite direction.

THE CONVENTION OF 1900.

The contest of the various cities of the country to obtain recognition by the Executive Committee of the A. V. M. A. of their claims for the Convention of 1900 has been more spirited than ever before, which we regard as a most encouraging symptom of the healthful state of the profession generally. Many of the candidates have gone at the task systematically and with vigor, urging their availability with intelligent persistency, putting forth every ingenious arguments which would tend to influence the Committee to decide in their favor. Chairman Butler arose to the importance of the situation, and prepared an elaborate circular letter embodying the claims of the various contestants for the guidance of the members of the Committee toward a wise and just decision, so that every phase of the question could be thoroughly weighed before voting. The veterinarians of Minneapolis, Detroit, and Milwaukee were most unanimous and insistent, and, while there were many others in the field, we expect to hear in a short time that the Convention of 1900 will be held in one of these three cities.

THE AUTUMN HORSE SHOWS have been greater both in the quality and quantity of the exhibitions, and the attendance and interest superior to anything in their history. How well this speaks for the popularity of the horse and his firm entrenchment in the hearts of the people, where he will remain forever and forever. The horse show should be kept pure and above suspicion, as it is a great educator of the people, and inspires them with a higher appreciation of the soliped, as it is there

that they see him at his best, and it is there that their taste is cultivated and the desire to possess him intensified. The veterinarian can do much to strengthen an interest in these exhibitions, and to insist upon their purity, and he should not omit an opportunity of doing so.

WE take much pleasure in announcing that, beginning with the January number, Prof. L. A. Merillat, of the McKillip Veterinary College, Chicago, Ill., will conduct for the REVIEW a "Department of Surgery." The reputation of this well-known veterinarian as a surgeon of the first rank is such that we can promise our readers a rare treat for the coming year, and we extend to them our congratulations in advance. All correspondence relating to this department should be addressed to Prof. Merillat direct.

ORIGINAL ARTICLES.

NEW THEORY OF THE ETIOLOGY OF SHOE-BOIL.

BY GEORGE J. GOUBEAUD, D. V. S., BROOKLYN, N. Y.

Read before the New York County Veterinary Medical Association at its October Meeting.

As in other arts and sciences, so it is in medicine: those cherished ideas and opinions we possess we are loath to cast aside. In most of our text-books, the authorities tell us that shoe-boil is caused by the improper application of the shoe; the heels being too long press upon the skin of the elbow and the structures beneath it, while the horse is lying in the recumbent position, injuring them, thus producing the characteristic lesion termed capped elbow or shoe-boil. The character and unsightliness of the enlargement, and also the complications, depend upon the extent of the injury, duration, and the continued application of the cause producing it. It is not my intention nor purpose to enter into a consideration of the pathology of this

affection nor to describe the various degrees which the injury can attain, neither will I consider its therapy, aside from the element of prevention. Therefore the etiology alone will be considered.

I well remember how attentively I listened to those older in the profession than I describe to clients how an animal would produce a shoe-boil, when they brought a patient having such a disfigurement for treatment. After the injury, for such it is, had been attended to, instructions would be given for the prevention of its recurrence, and invariably they were told that the heels of the shoe should be shortened so that they could not possibly press upon the elbow; a padded ring should be placed around the coronary region, and a bar or strip of wood placed in about the centre of the stall, so that the animal could not put the foot under him without causing itself great inconvenience, discomfort and a still greater amount of pain; and in recent years some have advocated the rubber pad or shoe, so that it is, as it were, impossible for the animal to injure himself by lying upon the iron shoe, and as a result prevent all liability to produce a recurrence of the affection.

I believed firmly in what I had been taught. I employed the principles for prevention faithfully. The cause which was ascribed to it seemed to me to be reasonable, and I applied the above lines of treatment for prevention; but, alas, I met with many a successful failure. It is true that in some instances I had no recurrence of the trouble, but in the majority of cases I had subsequent attacks, the severity of the injury depending upon the intensity of the cause. I know that my patients had short-heeled shoes, and of late years a rubber pad for a shoe, a bar of wood across the stall, and I believe that the shoe-boil ring had been regularly placed in position every night. All these agents were employed as preventive measures, and still there were recurrences of the injury. Now, it is reasonable to suppose that others have done the same thing, and have met with the same success, for it is not possible that all my cases were exceptions. The shoe, or the hoof, cause shoe-boil, or they do not. I

have been taught and told that it is caused by first the shoe and then the hoof, or by the foot, and if not by the hoof, then by the shoe. Opinion seems to be equally divided as to which causes it. Either one or both of these agents cause shoe-boil, or they do not, and if they cause shoe-boil, how is the injury produced, and if they do not cause shoe-boil, then what does produce it?

The question: how and why shoe-boils arise, has been perplexing my mind, and as a result I think I have come to a successful conclusion as to their origin. For this reason I offer it to the members of this society for their consideration.

Ulnar hygroma, as it is scientifically termed, has been ascribed, aside from my own opinion and observations, to be directly due to pressure, the result of the shoe being improperly applied to the foot, or to the foot itself. Our latest authorities claim that the shoe alone causes it, giving various reasons why it is thus produced, and describe the manner of its production. The animal is either improperly shod, the heels of the shoe are too long, or they are purposely made long in order to correct some abnormal condition of the foot or gait. The animal while in the recumbent position rests the elbow upon the heels of the shoe, thus injuring the skin and sensitive structures beneath, resulting in the characteristic tumor. First and foremost, if such be the case, I cannot understand how a result can exist produced by a cause which has no existence.

I have seen colts which never had a shoe upon their feet with shoe-boils, and I have seen horses without shoes have shoe-boils come on over night. I have seen horses without shoes turned in a loose box stall, and horses without shoes turned out in a pasture lot have shoe-boils develop; and yet they wore no shoes. Others have observed the same occurrence, and it seemed to make no difference. Shoe or no shoe, they had shoe-boils. I have seen horses wearing the rubber pad have shoe-boils, and in two instances the pad was advocated as a preventive measure, and still there were recurrences in both cases. I have seen horses shod with the half shoe or tip develop shoe-boil, and also cases of acute laminitis and injured feet develop

shoe-boil during treatment; still these cases wore no shoes.

Secondly, I can't understand how an animal can lie with comfort and ease in the recumbent position and injure his elbow so severely as to produce shoe-boil and its complications—even to a fracture of the olecranon. The skin and underlying structures of the elbow region are sensitive. They will not admit of any pressure without the animal evincing signs of pain and discomfort. The animal will not lie sufficiently long upon the shoe or foot to cause this abnormality. The position itself is abnormal; the animal cannot rest with ease, and he will not lie in this position. Supposing, for the sake of argument, that the animal with shoe does lie in this position, would not the skin and underlying structures suffer more severely than they do by resulting in sloughing, due to the pressure of the skin and structures beneath. We will say that a pressure of 200 lbs. is applied to the elbow for half an hour, would we not have a large slough take place, due to interference with the circulation? Would not a slough of this region be common? But a slough does not take place. It is rare. But when it does occur it is not the result of pressure, but of acute inflammation, terminating in pus formation, and the part which has become injured becomes gangrenous. The skin breaks, thus making an exit for the imprisoned pus. Would not this result be common? Would not the complications be grave due to the danger of septic infection? Would not their removal be an uncommon procedure? How often would we be called to enucleate the mass of new tissue which has formed?

I think very seldom. Suppurative inflammation would do that—and there would be no reason for our interference. If the heel of the shoe causes shoe-boil, why is it that horses which never had the affection become diseased after wearing pads for periods ranging from two months to two years? The rubber is soft, pliable and flexible. It cannot possibly cause an injury. It yields to pressure, and still these horses have shoe-boils. I could go still further in proving that the shoe does not, by any means, nor under any circumstances, cause shoe-boil, but suffi-

cient has been said, so I will take up the subject of the foot as a factor in producing this affection. The same arguments and many more can be advanced against the foot as a factor or agent in producing shoe-boil. The questions arise: if a horse has shoe-boils, and they are caused by his feet, how are they caused, and upon what part of the foot does the horse lie? One professional gentleman told me that the horse places the elbow between the two heels of the shoe, and lies upon the frog, thus producing it, and to substantiate his statement I was shown the horse. He had a shoe-boil. Upon investigation I found that it had existed six months, with two recurrences of the trouble. He was then shod with the rubber pad. In fact, all four feet were so shod. Further inquiry developed the fact that he had been so shod continuously for two years previously. Being so shod he could not possibly lie upon his frog. Secondly, it is a physical, mechanical and anatomical impossibility for an animal to lie upon his frog. He cannot flex the foot while in the recumbent position, for the knee is already flexed as much as it can be. The frog idea I think is settled, for a horse cannot possibly lie upon his frog. I thus claim that the heels are the offending agent. They state that the animal rests upon the heels, thus producing shoe-boil, and some add that if the animal would only turn the heels in or out it could not rest upon them, and I have often thought that if such be the case why would it not be easier to turn the shoulder and elbow in or out than the foot. The shoulder and elbow have all motions which are not possessed by any of the articulations from the knee down. The rubber pad when it projects beyond the frog prevents an animal from lying upon the heels. I have seen no difference. Others claim that an animal rests the elbow upon the rim of the shoe, and if a shoe be not upon the foot then it rests the elbow upon the wall, either the inside wall or the outside one. If such be the case, then why is it that a horse with very narrow, contracted heels (so much so that the pad projects almost one inch on either side, so that the animal cannot touch the foot with his elbow because of the pad) can develop shoe-boil? I ask, what caused it in such

a case? This animal could not bring his elbow in contact with the foot because of the presence of the pad, neither could he rest upon his frog or heel, and still his case presented a well-developed tumor of the elbow. I have not as yet heard that a horse can lie upon his toe or sole. It is possible that he might do so, but I have not seen that kind of horse. Now, supposing that the horse does rest the elbow upon the foot, and supposing that the weight upon each foot is 100 lbs. Take a hoof pincer and squeeze the foot to about a 25-pound pressure. Watch how he yields and squirms. Continue the pressure; watch how he jerks away the foot. Continue the pressure, and, unless you are heavier than I, you will dangle in the air like the tail end of a kite before a stiff breeze. You will say that this kind of pressure is too localized. Well, place an inch and one-half iron plate on the wall and one upon the sole and bars. I can assure you that if the animal has a sensitive foot and is nervous you will do it only once. Compress both walls, or the inside heel, and the outside quarter, and you have the same result. Now, suppose that the animal's foot is devoid of sensation, and two large poultices of bran are placed upon his feet. He could not lie upon his feet because of the largeness of the poultices. The poultices are anything but hard, and still this horse develops two large shoe-boils over night. Now, suppose you had a case of sloughing of the plantar cushion, and your patient had a poultice of bran upon his foot that extended almost to the knee. It was sufficiently large to make three ordinary poultices, and this horse develops shoe-boil. Now, how could the hoof cause shoe-boil in these two cases, when the elbow and foot were over three inches apart, and separated by a soft pad or cushion? Still these two cases had shoe-boils. In order to keep the foot and shoe away from the elbow the shoe-boil ring is ordered. It is made twice the average size, and placed above the foot every night. The one ring is put on to prevent a recurrence, and the other is placed above the foot to act as a preventive. The owner sends for you three months afterwards, and you find a well-developed tumor upon the elbow of the leg which had not been previously

affected. You tell him that he simply neglected to place the shoe-boil ring above the foot. The result is that he points to the shoe-boil rings which are still upon the horse's legs to show you that they had not been as yet removed. In spite of the fact that all known precautions were taken to keep the foot away from the elbow, such as shoe-boil rings, rubber shoes, a bar of wood across the stall, and a well-bedded stall, he developed a shoe-boil; and still I ask what caused that tumor? I will go still further, and ask what caused this shoe-boil: A horse becomes unmanageable and attempts to run away. While at the top of his speed the driver gives it a sudden, sharp and quick pull on the lines. He immediately falls in almost the same position which he had while leaping in the air. To be brief, his position was that of an animal about to assume the standing position. Resting upon the sternum, front feet extended, head up, and the rest of the body still upon the ground. While in the position which I have just described he slid over the rough or cobblestone pavement for a distance of six feet. Beside minor skin abrasions, he received a lacerated wound of the skin of the left elbow about two inches long and running from right to left, which necessitated suturing. Upon the right elbow he received a few skin abrasions which at the time appeared to be most trivial. The animal was backed into a stall and tied up, so that he could not possibly lie down, fearing that the sutures might tear away the skin. Six hours afterwards the animal was again seen. Now, the elbow presented a different appearance. The left elbow region was swollen to about twice its normal size. The sutures began to give way, and through the edges of the wound there escaped serum tinged with blood. The right elbow presented a typical shoe-boil. Although the tumor has decreased quite considerably, still there remains an enlargement about the size of an orange. Upon the left nothing remains but a scar, with a slight thickening of the skin. Now, what was the cause of these shoe-boils? He did not have them previous to being hitched to a wagon.

Take the case of the horse with a large shoe-boil and of long

standing. You will usually find in the centre of the mass a raw granulating surface varying in size from that of a five-cent piece to that of a silver dollar, generally circular in form. It never seems to heal, and remains always about the same size. If seen in the morning, we will find the sore spot covered with dirt, oats and a few blades of hay or straw. Examine his feet and shoes. No blood will be found upon them, or if some be found, it is only in spots or drops, where it has fallen from the tumor, but not in one large spot, which would necessarily be the case if he lay upon the tumor. Again, I ask what is the cause of this circumstance?

For the time being I will turn to the cow. While I have had very little practice among cattle, still I remember seeing one case of what appeared to be shoe-boil. I have spoken to others, and while they admit that it is very rare, still it does exist. A condition of the elbow commonly seen in cattle is that of a raw granulating wound, with a thickened surface, and greatly thickened edges. By some it has been described as a bed sore. It is seen usually in those cattle which extend the leg upon the side they lie on. I have seen during my observations this position assumed by animals which were kept in close confinement, and where one animal was forced to stand while the other rested itself. Cows do not wear shoes. Their feet are not like those of horses; their feet cannot touch the elbows; their position is different from that of the horse, and still they can have shoe-boils. Again, who among us having a canine practice, however small, has not seen fibrous tumors upon the elbows of dogs, usually those of the large variety. Yet dogs do not wear shoes, and they cannot lie upon their feet. Still they have these tumors. Take wild animals, such as the lion, tiger and bear, kept in captivity, and you will see the same thing. Or examine a number of camels, and you will surely find one among the number which possesses this abnormality. Take man, for instance, and you will often find a small tumor upon his elbow. It is soft, painless, slightly fluctuating, and also slightly moveable. Ask him how it came there. The an-

swer is invariably that he fell and struck the elbow upon the ground or against a door or perhaps he was chopping wood. Now, if shoe-boils are not caused by the shoe, and I think that I have proven that horses and colts which never wore nor had them on their feet at that particular time, have shoe-boils, and, if the shoe does not cause this affection, then the foot does ; and if the foot does not, what is the cause? I have shown that animals without shoes and animals that cannot lie upon their feet suffer from hygroma of the elbow, and I hope if I am right to be able to prove the correctness of my views, and if I am wrong I ask to be set right.

I am unfortunate in the fact that medical science has for me many bugbears, and one of them is the subject of which I am speaking. I have given the subject earnest and long thought, serious and painstaking consideration. I know that my ideas are radical, for I have never heard nor read of them before, and for that reason I have been loath to express them ; but, having the courage of my convictions, I do so, asking your consideration. Like every student, I believed implicitly in what I had been taught ; I simply did as I was told ; but, alas, I have met with many a successful failure, and in this instance I had as many failures as I had successes. The failures I would not have had had that which I had been taught been true, for the simple reason that the preventive measures are mechanical. They are easily applied. I was taught that all that was necessary was to keep the elbow away from the foot, or shoe, or both, which I did to a positive certainty, and, *presto*, you would have no recurrence ; but, *presto* forgot itself. I did have subsequent attacks. This resulted in reflection, and so, right or wrong, I offer it for what it is worth.

Having had abundant opportunity for observing on an average of 85 sale horses resting every night for seven years, I took particular pains in watching just how they would lie. I am sure I saw little or no difference in the position which they would assume, aside from those affected with shoe-boil. It is true that I saw horses lie upon the heels of their shoes, or they

appeared to assume that position ; but, if the heels were long they would lie only a minute or two and then shift themselves to a more comfortable position, and even if they did lie in this position for a longer period of time, which was only so in rare instances, I saw no shoe-boil result. This position seemed uncomfortable and they would not stay in it long. They could be seen to shift themselves just as soon as the position became uncomfortable, which was very soon. I remember one animal in particular, which did not lie upon the shoe, but when the long-heeled shoe was removed he laid upon the foot, and he did this for three weeks. He was then sold, after which I lost track of him. This animal had no shoe-boil, neither was there any indication of any skin affection to lead me to suspect that the skin was bruised or chafed. The same can be said of the foot and much more. It is true that I have seen horses lie upon their feet and remain in that position some time. I have seen it, I admit ; yes, but how much weight or pressure was there upon the foot ? I say not much, if any. If there was I could not dislodge it with perfect ease, and if the elbow and foot rested one upon the other, and they bore their respective weights in proportion to the rest of the limb, I assure you it would take more than a slight pull to change that position. Take the case of a horse weighing 1900 lbs., lift the knee and pull the foot forward, and unless you are accustomed to pulling heavy objects I am afraid that you will need a porous plaster. The animal bears little or no weight upon the foot when compared to the rest of the limb. Take the case of the horse with turned-in toe or pigeon-foot, as it is called. It is a physical and an anatomical impossibility for him to lie upon his foot. I have seen two inches of space between the foot and elbow, and this individual horse had two shoe-boils of about two years' standing. I was informed that they had been removed, but had returned. I have noticed that horses with turned-in toes rarely have shoe-boil. But this can be accounted for by the fact that they are not very common.

The position which I have found animals assume, and which

I firmly believe to be the cause of the affection, is that an animal will, while attempting to assume the standing position, and which he will necessarily have to do, is to extend the foot and flex the knee, thus forming an arch with the foot and elbow resting upon the ground. While attempting to assume the standing position he strikes his elbow forcibly upon the floor or ground, injuring it, and thus producing this lesion. In the course of my investigations, I have seen this occur twice, the animals evincing symptoms of acute pain and lameness till the following morning. I also noticed that those which were predisposed to this affection were animals that assumed this position when recumbent, and they slept with the head between the knees, and the nose resting upon the floor. I rarely saw them assume this position in a loose or box stall, but always in a straight stall. They usually rested with one side of the body close to the side of the stall. It will often occur when the animal becomes frightened and rises suddenly. It will then strike its elbow upon the floor in a forcible manner, thus injuring it. I know one instance when this occurred. I removed a splinter of wood, about the size of a match, from the skin of the elbow region. The animal was very lame for over a week, after which it gradually passed off, and he made a good recovery, with no recurrence. I know of another instance in which a horse had a large shoe-boil. A diagnosis of this affection was made, complicated with synovitis of the elbow joint. He was destroyed three months after. A post-mortem developed an incomplete fracture of the olecranon, with a beginning ankylosis. It developed afterwards that the animal was kicked by another horse upon the point of the elbow, which resulted in the condition described. In the course of my investigations I have found that animals which had a tendency to develop this affection were those which invariably pawed their bedding back and preferred to lie upon the bare boards. I do not know of a chronic case that did not do this. The bar of wood keeps the bedding in front, so that it cannot be pawed back, and it also raises the sternum so that the elbow cannot touch or strike the ground forcibly.

The preventive treatment consists of two pads, one for each elbow. They fit around the arm and up over the elbow, extending into the arm pit, and are kept in position by a strap which goes over the withers. It is a crude affair, and if perfected would positively prevent shoe-boil.

ROUTINE MANIPULATIONS AND OPERATIONS FROM THE STANDPOINT OF ASEPSIS AND ANTISEPSIS.

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It is certainly a very nice thing to treat a rare disease, or to perform some unusual operation, but the success of the average veterinary practitioner depends far more, in my opinion, upon his personal adaptability, his power of observation, introspection, his methods, *modus operandi*, experience, judgment and dexterity exercised in the routine manipulations and operations of his practice than in the occasional performance of some rare and unusual operation. Too much importance cannot be laid upon intelligent and thorough attention to method and detail in our every-day practice. The principles underlying all surgical procedure are the same whether the case be the treatment of an ordinary wound or the performance of one of the more difficult and delicate operations known to veterinary science.

Some people are always waiting for an opportunity to do some wonderful thing and let thousands of little matters go by that, taken advantage of, would have been productive of surprising results. Success comes to the great majority of people by being able and doing ordinary and common things well. The same is true of the surgeon. Compare the number of times you make an examination or dress an ordinary sore or wound to the number of times you are called upon to perform one of the major surgical operations, and you will, I think, agree with me that the routine manipulations and operations are worthy of our consideration at this time and in this place.

More attention should be given in our veterinary schools to the training of students in the art, as well as the science, and we would not see graduates of the best schools, who are well educated, not able to diagnose and to put into practice what they have been taught, and making mistakes that are evident to laymen, to say nothing of good horsemen.

In the first place, a man should not study veterinary medicine unless he is naturally adapted for the profession. I sometimes see practitioners, who, I think to myself, ought to be behind the counter selling calico instead of practicing veterinary medicine. The fact is that a man, in order to make a good veterinarian, should understand the habits, functions, nature and disposition of different animals, how to go around them, to handle, restrain and control them. He should be a judge of a horse, and a good horseman in the higher sense of the term.

If he has not the natural adaptability and these acquirements, he cannot be considered a qualified veterinarian. I do not care how much scientific and other knowledge he may have, or from what college or university he may have graduated, he is out of his element, and cannot successfully cope with the man with natural intuition and characteristics, other things being equal.

There are many difficulties that are constantly confronting the veterinary practitioner that are not met with in the practice of human medicine. Our patients cannot tell us, in articulate language, anything. This fact is often referred to by laymen as well as by professional men. They tell us a good deal, however, if we are sufficiently observant and experienced to understand their language. Every attitude, every position of head, body and limb, and every movement has a significance and tells to the trained veterinarian the nature and condition of his patient with just as much certainty, yes, often more certainty and accuracy, than the human being tells his physician of his symptoms and ailments.

Another difficulty is that the commercial value of each patient is, as a rule, taken into consideration in determining

whether the animal is to have treatment or not, and if treatment, to what extent and cost, his commercial value, rather than his necessity, being the chief factor in determining the matter, whereas, in human practice, no commercial value is ever placed upon a patient.

Another difficulty, and the one that should receive the most attention in the consideration of routine manifestations and operations, is the importance and necessity of aseptic and antiseptic measures in all surgical procedures and dressings. In human medicine, again, our brethren have a decided advantage, so far as aseptic and antiseptic precautions and measures are concerned. The principles involved are essentially the same, but their application is far more difficult, and sometimes impossible, in veterinary surgery, as the means available to the veterinary surgeon for satisfying the demands of these principles are not equal to those in human practice. Purification of the air where the animal is kept, complete sterilization and prevention of infection, position, rest and immobilization in our patients are problems that to a large extent remain to be solved.

Herbert Spencer says that knowledge is useful in proportion to its application. Aseptic and antiseptic principles of science are of real value to the veterinary practitioner only to the extent that he is able and painstaking enough to put these principles into his everyday practice. It is a comparatively easy thing for any modernly educated veterinarian to outline the principles and practice of aseptic and antiseptic surgery, and as a practitioner he may have the disposition, but he will not always have the opportunity and ability to effect complete sterilization of everything on and about his patient.

The chief question at the present time is how to most perfectly bring practice into accord with knowledge, so as to secure the best results in the ever-varying and widely different conditions in our routine work. It is my opinion that it is in the application of scientific facts and doctrines now well understood that the chief achievements in the near future are to be expected. In the past most all, if not all, the attention and credit was

given to the skill displayed in the operating and mechanical part, with little or no intelligent care and after-treatment. Fully as much attention should be given to aseptic and antiseptic precautions and methods, for the science of bacteriology has taught us the relations of micro-organisms to the disturbances of wound healing and the importance of preventing infection in simple as well as in extensive wounds ; therefore, asepsis and antiseptics are at the very foundation of all routine manipulations and operations, if science is the handmaid of our art.

Aseptic wounds include all which are preserved from contamination or infection of any kind. An aseptic condition in a wound may be obtained either by the protection the wound received from the first against the access of any septic agent, or by the power of living tissues to resist and destroy septic agents, or by the application to the wound of substances which destroy them. As long as asepsis is maintained no decomposition of the secretions or tissues take place, no sloughing of killed or partly killed tissue occurs. When the proper cares to favor the nutrition of the wounded tissue are rendered, the healing of the wound progresses without pain, inflammation, or suppuration, and the least possible amount of cicatricial tissue is produced. To secure an aseptic condition, or to approach it as nearly as possible, is the first and most important indication in all our surgical work and treatments.

Septic wounds include all in which any agent capable of exciting tissue irritation and cell necrosis lodges and grows. They may present the most widely different degrees of wound disturbances dependent upon the varying conditions which the special wound may present, and upon the character of the treatment which is instituted, but in all cases they are attended with some degree of inflammation and suppuration, and with sloughing of dead tissue. The septic agent may be introduced by the body that inflicts the wound, or by the dressings that are applied, or may be among the dust particles that float in the air to which it is exposed. In very rare cases, it may be conveyed to the wound through the blood of the animal sustaining the wound.

There are many modifying influences among animals as to their individual ability to recover from an injury or surgical interference. Of animals in apparently good physique, and enjoying the same hygienic surroundings and treatment, one will recover from a serious injury or surgical operation speedily and without serious complication, while in the other an injury, apparently much less severe, may end fatally or in prolonged illness.

The power of resisting the effects of extraneous influences to some degree is a characteristic of all living matter. Its cessation is death. The quality of the vital resisting power inherent in the constitution of an animal cannot be estimated by any known signs. It may be modified by other conditions, but in some degree it is always present as a powerful unknown factor influencing the result of any case.

Mental impression, shock from injury, old age and pre-existing organic disease are factors that influence the result of treatment.

There are constitutional differences, such as plethora, anæmia, obesity, that have to be taken into consideration by the practitioner. The temperament, the breed, œstrum, pregnancy, season of the year, faulty hygienic and sanitary conditions, previous overfeeding, previous underfeeding, exhaustion from overwork, exhaustion from physical strain, deleterious effects of vicious habits; these are some of the more marked examples of influence which, by their effect upon bodily nutrition in general, aggravate and affect the result of all routine manipulations and operations.

Good hygienic conditions, by their relations to the functions of nutrition, exert important influence upon all cases. The stimulating effects of sunlight upon nutrition should be regarded in hygienic management. Next to the necessity of fresh air supply, that of sunlight should be provided in arrangement of hospital wards. There is an instinctive craving for the light innate in all living creatures, which becomes more marked whenever, from any reason, there is a depression of vital power.

Insufficient air is synonymous with impure air, for the

purest air, if not renewed with sufficient frequency, becomes speedily contaminated by the exhalations and effete material from the animals of those breathing it. This, which is true in health, is still more quickly accomplished when the animal is diseased. It becomes, therefore, more important for the well-doing of the sick animal than for the welfare of the well that an unlimited supply of pure air should be provided. When to the natural sources of air contamination there are added the emanations of suppurating wounds, the need of constant change in the surrounding air is more emphatic still, if its purity is to be preserved. While air is the great oxygen carrier for the needs of the living body, it receives in exchange from the body the débris of its disintegration. It is the vehicle of transportation of an infinite variety of floating matter, the great mass of which is organic in character. Putrescible organic matter cannot long be exposed to the air without becoming the recipient of putrefactive germs from it. Aseptic wounded surfaces quickly become septic when exposed by reason of the floating septic particles that are conveyed. The best stimulant to the vital resisting power of a living tissue, by which the effects of sepsis are antagonized and overcome, is perfectly oxygenized blood. The air thus carries both the bane and antidote. The practical end, therefore, to be aimed at, in any given air-supply, is that there shall be as small a proportion of the bane and as large a proportion of the antidote as possible. This involves the removal, the suppression, or the diffusion, as much as possible, of all sources of contamination, and the dilution of that which is unavoidable by the introduction of the largest quantity practicable of the purest air attainable. The purity and the sufficiency of the air are thus seen to have a double relation to the healing of wounds, one in a general relation, which the air shares with other hygienic conditions, and the other a special relation as a carrier of and an antidote to sepsis. The hygienic conditions in the wounded animal must be made as good as possible before the whole duty of the surgeon is accomplished.

The relation of micro-organisms to suppurative inflammations is one of great importance in its bearing upon the healing of wounds. While not all forms of micro-organisms are capable of exciting suppuration, nor are micro-organisms the only agents that are competent to excite suppuration, yet the proof is conclusive that the suppurative diseases that complicate wounds, and the acute suppurative inflammations that occur in animals, are caused by the vital activity of various forms of micro-organisms that find in the wounds the conditions that favor their development and increase.

The result to be expected in routine manipulations and operations depends very largely upon the practicability to carry out methods by means of which the access of micro-organisms to, or their development in wounds, can be prevented or diminished, for where disturbances of repair are escaped the healing is sure, speedy and perfect. If septic infection could be altogether prevented there would scarcely be any bounds to the possibilities in the domain of veterinary surgery. No decomposition or fermentation takes place in organic matter without the agency of some form of micro-organism, and where no extraneous organism has gained access to a wound, no wound disturbance occurs. Certain forms of micro-organisms are always found associated with certain forms of wound disturbances. Clinical experience shows that where protection from the invasion of micro-organisms is secured there is an immunity from wound disturbances.

The recognition of the activity of micro-organisms as the essential cause of disturbances of repair in wounds supplies a scientific basis for treatment and affords a definite principle by which to test methods of wound treatment. It is not the organisms themselves that are the irritants that directly cause wound disturbance, but the products that are formed in the course of this growth and multiplication, either directly secreted by themselves or formed by the decomposition of the substances on which they feed. These secondary products—ptomaines—are poisons or septic agents, and the results in gen-

eral of their action upon the living tissues with which they come in contact constitute *sepsis*. Whatever tissue or wound-surface is contaminated by these ptomaines is in an *aseptic* condition, and whatever method or means antagonizes their production, or antidotes, restricts, or removes the results of their presence, is an *antiseptic*.

The ideal treatment of a wound is that by which a perfectly aseptic condition should be obtained and presented; where this is impracticable, the object of treatment becomes changed to the application of means to diminish the activity of the septic organisms, to secure the rapid removal of their products, and to increase the resisting power of the wounded tissues.

Cleanliness is the very first essential in all our routine work; in fact, there is no such thing as asepsis without absolute cleanliness. I do not know how to sufficiently emphasize the importance and actual necessity of cleanliness in each and every detail, if we expect to obtain the best possible results. Practitioners with unkept surroundings, and who in their actual daily practice belittle their calling by their disregard of water and their careless toleration of dirt, will not be expected, much less inclined, to carry out the scientific principles laid down in this paper. Fortunately this indifferent and careless class of veterinarians have to give way to the more competent and worthy.

In addition to the resources of cleanliness for preserving wounds from becoming the seat of the vital activity of micro-organisms, there still remains to the veterinary surgeon the employment of direct applications to wound-surfaces of substances which have the power either to destroy them outright or to restrain their growth. These agents are classified as antiseptics and their use as above constitutes wound disinfection.

The possibility of obtaining antiseptic results in a wound by agents that simply restrain the growth of septic organisms, as well as by those that destroy them, is a matter of great practical importance, for it has increased the number of substances available for antiseptics, and since the preventive effects of many

agents can be accomplished by much smaller amounts than their destructive effects, it has been found possible to obtain their antiseptic effects with less local irritation of the wound itself and less liability of danger from absorption of poisonous quantities of the agent into the blood.

In estimating the usefulness of any agent as an antiseptic application in the treatment of wounds, three things have to be taken into consideration :

- 1. Its power as a bactericide or as a restrainer of bacterial multiplication.
- 2. Its immediate local effect on the wound surfaces—neutral, irritant or caustic.
- 3. Its remote constitutional effect when absorbed into the circulation.

The bacteria of different species manifest different degrees of vital resistance to chemical reagents.

The following table exhibits the strengths needed to destroy the vitality of the micrococci of pus, or to prevent the development of the organisms. The practical application has found its place rather in the preliminary disinfection of materials likely to come in contact with wounds in the course of formal surgical operations than in applications to wounds themselves.

TABLE OF BACTERICIDAL STRENGTHS.

<i>Reagents.</i>	<i>Efficient in the proportion of one part in</i>
Mercuric bichloride	20,000
Potassium permanganate.	833
Iodine	500
Creosote	200
Sulphuric acid	200
Carbolic acid	100
Hydrochloric acid	100
Zinc chloride	50
Tincture ferri chloride	25
Salicylic acid dissolved by sodium borate	25
Citric acid	8
Chloral hydrate	5

The following table shows the minimum quantity required to prevent the development of the pyogenic microcci :

TABLE OF STRENGTHS REQUIRED TO RESTRAIN BACTERIAL MULTIPLICATION.

<i>Reagent.</i>	<i>Efficient in the proportion of one part in</i>
Mercuric bichloride	35,000
Iodine	4,000
Sulphuric acid	1,800
Carbolic acid	500
Salicylic acid and sodium biborate, equal parts	200
Boracic acid	200
Ferric sulphate	200
Sodium biborate	100
Alcohol	10

The foregoing tables are from Dr. L. S. Pilcher's work on "The Treatment of Wounds," recently issued. I am also indebted to the same author for much valuable data in connection with the subject under consideration.

Comparison of the two tables shows that the more potent bactericides have the power of resisting multiplication in quantities considerably less than are required to destroy vitality. In the case of iodine, the difference is eightfold; in that of carbolic acid, fivefold; in that of sulphuric acid, fourfold, etc.

In addition to those soluble agents, marked antiseptic power attaches to many substances which are insoluble or comparatively so. These include iodoform, naphthaline, zinc oxide, bismuth subcarbonate, subnitrate, suboxide and subgallate, aristol, ariol, iodol, nosophen and other similar compounds. The common property of this group of agents is the inhibition by their presence of bacterial growth and multiplication. To some of them attaches also a chemotatic power; that is to say, the power to stimulate the accumulation of living energetic cells in the wound-surfaces and borders. The effect of this is to strengthen the local resisting power of the tissues and to favor rapid repair.

Carbolic acid, the agent first used in the application of modern antiseptics, and used so extensively by Lister, is now largely replaced by other agents. The properties that commend carbolic acid for use as an antiseptic are its reliability and its diffusibility. Its disadvantages are the local irritation which it ex-

cites, its volatility lessening its usefulness as an agent to secure permanent antisepsis, making frequent renewals of the dressings necessary, which renewals violate another fundamental principle of wound-treatment, that of rest; its toxic qualities, dogs and cats being particularly susceptible. Carbolyzed ointment and solutions of carbolic acid in oil or alcohol have been shown by Koch to be absolutely inert in respect to their action on bacterial life, either on the spores or the fully developed organisms. Anthrax spores introduced into oily solutions of carbolic acid, of thymol, and of salicylic acid, in each at the end of three months were still found capable of development. When, however, the oily solution comes in contact with substances containing water, it undoubtedly gives up part of the acid to these and in this way antiseptic effect may be produced. Carbolic acid is used to good advantage in the antiseptic bath for the immersion of metallic instruments.

Creolin, *cresol*, and other products of coal-tar distillation have largely superseded carbolic acid. These substances have marked antiseptic power, do not produce so much local irritation, and are less toxic. They form milky emulsions when mixed with water, and have been used in such emulsions of from two to five per cent. strength.

Salicylic acid and *boracic acid* are feeble bactericides, but potent as restrainers of bacterial activity. They are devoid of the irritating and poisonous effects of corrosive sublimate and carbolic acid.

Corrosive sublimate is largely used as an antiseptic. Koch found that the spores of the bacilli of anthrax, though unaffected by other antiseptics, were killed in a few minutes by a solution of corrosive sublimate, 1-1000, and to have been prevented from developing by a solution of 1-5000. The necessity for changes of dressing with corrosive sublimate are rare. The danger of poisoning from absorption is slight when in the hands of the competent practitioner. Corrosive sublimate is the most reliable agent available for the disinfection of fresh wounds that are known or presumed to be infected. For this purpose 1-5000

aqueous solutions are used. It is much used also in the strength of 1-1000 or 1-2000 for the disinfection of the skin in regions that are to be operated upon, and for the disinfection of the hands of surgeons and assistants.

Iodine and Iodoform.—The antiseptic properties of iodine are manifold greater than those of carbolic acid—as a bactericide five times, and as a restrainer of bacterial growth eight times as great—but it has attracted general attention only since the introduction into use, as an antiseptic, of its compound, iodoform. Iodoform did not irritate the wound; it was used both as an application to the wound-surfaces and as an external antiseptic, protective dressing; its decomposition or its volatilization was so slow that the frequency of the dressings required was greatly lessened. The odor and the toxic qualities of the drug were the chief disadvantages that limited its use. It diminishes secretion, decomposes ptomaines and stimulates leucocytosis, and when itself decomposed liberates the germicidal iodine. Aristol, airol, iodol and nosophen are among the other iodine compounds used as substitutes for iodoform.

Salts of Bismuth.—Bismuth subnitrate and bismuth subgallate are of value especially when used as a powder to be dusted over the skin surrounding a wound, to restrain the activity of epidermal organisms, and as a powder applied to granulating surfaces to promote its cicatrization.

Salts of Zinc.—Zinc oxide is especially worthy of mention and commendation as a dusting powder in the treatment of burns, excoriations and abrasions, and for use upon the skin about a wound and along a suture line. It restrains the activity of the epidermal organisms. It is of itself perfectly unirritating, and with serous secretions forms a bland and soft magma. A mixture of equal parts of zinc oxide and of water, with the addition of 10 per cent. of zinc chloride, forms a paste which, when applied to wounds, rapidly dries into a firm protective crust or artificial scab.

Zinc chloride is very soluble in water and in the stronger solutions is perfectly caustic. A strength of 1-50 is required to

destroy pyogenic organisms, and in this strength the living tissues are affected by it, a zinc albuminate being formed which appears as a white translucent film covering the surface to which it has been applied. Its use is restricted to the disinfection of wounds that are already frankly septic. Solutions of from 5 to 8 per cent. strength should be used. The film of zinc albuminate which results is markedly resistant to new bacterial invasion, and further restrains exudation and protects mechanically the underlying tissue. This combination of qualities makes it an antiseptic agent of the greatest value in veterinary practice in dealing with sores and open infected wounds.

Among antiseptic agents may be mentioned aluminum acetate, acetanilid, hydrogen peroxide, mercuric iodate, naphthalin, beta-naphthol, pyoktanin, formic aldehyde and heat.

Heat.—The temperature of boiling water, 212° F., is sufficient to quickly destroy all known pathogenic bacteria. Most spores are also destroyed by this degree of moist heat, but so marked a power of resistance inheres in some spores that they are not destroyed by even so long an exposure as two hours. For insuring the absolute destruction of all spore life the method of *fractional sterilization* is available.

None of the ordinary pus-forming bacteria are spore bearers, so that their destruction, in such dressings and instruments and materials to be used in wound-treatment as will not be injured by moderate heat, is simple and rapid. When micro-organisms in a desiccated state are exposed to dry heat, a much higher temperature is required for their destruction than when they are moist or when they are exposed to the action of hot water or moist steam. For destroying the ordinary pyogenic organisms exposure to at least 212° of dry heat for one hour is required, but to insure the destruction of spores an exposure of three hours or more to a temperature of 284° F. is necessary.

The possibility of using heat conveniently in the shape of boiling water or of steam for the absolute and certain destruction of bacteria has caused these agents to very largely supersede chemicals for the disinfection of instruments, dressings and

many of the accessories used in the treatment of wounds. Thermic sterilization is much more readily and certainly accomplished than is chemic sterilization.

The Dressings.—For absorbent and protective purposes the chief part of a wound dressing is composed of suitable pieces of loosely woven, thin, gauzy, cotton cloth, similar to the “cheesecloth” or “buttercloth” of the shops; this constitutes the *gauze* of the surgeon. Other absorbent materials may be substituted according to the convenience of the particular case, such as pads of moss or of sawdust, masses of the cotton fibre known as engineer’s waste, or of soft absorbent paper, or quantities of oakum, jute or “wood-wool”; but the superior convenience and the unequalled absorbing qualities of the gauze have caused it to be accepted almost universally by practitioners of human surgery as the staple dressing material. It also has an important place in surgical dressing in veterinary practice. This dressing, like all other dressings and everything else, requires sterilization. Steam sterilization is convenient and effectual.

Boro-Salicylated Moist Dressings.—For the absorption of primary wound-discharges a moist dressing is superior, and in view of the imperfect character of all skin sterilization, it is always more prudent to have the dressing which comes in direct contact with the skin in the vicinity of a wound moistened with a solution, which at least shall inhibit bacterial activity. Corrosive sublimate solutions at once suggest themselves on account of their potency as a bactericide, but they are too irritating to the skin to be left on many hours in contact with it, and if used freely are liable to provoke the poisonous effects of the absorption of the drug. Carbolic acid is equally objectionable. Boracic and salicylic acids, feeble bactericides but potent as retainers of bacterial activity, are free from the objections named as to corrosive sublimate or carbolic acid, and may be used in a solution made by dissolving one ounce of boracic acid and eighty grains of salicylic acid in a gallon of boiled water, for the preparation of a moist antiseptic absorbent dressing.

Cotton wool, tow, oakum, jute, turf moss, sawdust and many other materials are used for surgical dressings. They can be impregnated with such antiseptics as the surgeon considers indicated. In veterinary practice the animal must be tied or secured so that he cannot bite or tear the dressings and bandages off.

I trust that I have said enough to inspire veterinarians to be more painstaking in their routine manipulations and operations. If there is any part of the routine practice that veterinarians are remiss in it is in carrying out the principles of aseptic and antiseptic surgery. The same principles apply to major surgery, and the practitioner who applies these in his everyday practice will be able to apply them also and obtain better results in such major operations as he has to perform.

We want in the veterinary profession to-day men with common sense, common honesty and ability and a disposition to do the ordinary routine practice methodically and well, who will practice up on the latest scientific aseptic and antiseptic methods; men who are willing to confine their efforts to the legitimate limits of the profession; men who are horsemen in the highest sense of the term, but who are not horse dealers, horse jockeys or liverymen; men who are working to earn all the money they can legitimately, but who would not sell their birthright for a "mess of pottage."

AMERICAN VETERINARY MEDICINE.

BY R. S. HUIDEKOPER, VET. (ALFORT).

Response to a Toast at the Banquet given to Prof. A. Liautard, at the 25th Anniversary of the American Veterinary College, Manhattan Hotel,
New York, September 5th, 1899.

Mr. Chairman and Gentlemen:

The toast given to me to respond to, "American Veterinary Medicine," is so closely associated with the man whom we meet to do honor to to-night, that what I can say in response to

it would be almost equally appropriate had the title been Alexander Liautard.

I ask you, gentlemen, to join me in a bumper to him, scientist, practitioner, teacher, friend, a native of the country which first gave birth to veterinary schools, and stands at the head of the veterinary profession to-day, and an adopted son of this our great country, which has been so much benefited by his sojourn amongst us, that his name will be an indelible landmark in American veterinary medicine.

Dr. Liautard! your health!

Any history of veterinary medicine in America is practically confined to the last half of this century, with the exception of an attempt made in 1806, by Dr. Benjamin Rush, the great physician, patriot and statesman, who endeavored at that time to have a veterinary school added to the University of Pennsylvania. For the rest of the first fifty years of the century we can find no trace of any advance being made. Early in the fifties Dr. George Dadd, a man who seems to have been of more than usual intelligence, appeared in Boston and organized an attempt at a veterinary school; and at the same time published, for a year or two, a veterinary journal. The school itself seems to have been soon abandoned, though the books and seal of it passed to other hands and went to Philadelphia, and afterwards into Ohio, and further West, where, on into the sixties, diplomas were issued bearing the forged signatures of men already dead and others.

In 1857 an act for the incorporation of the New York College of Veterinary Surgeons was signed at Albany, and an organization was commenced, with Dr. John Busteed as Professor of Anatomy and Surgery, but only a paper organization was kept up for several years without any real work being done.

1862 is the year from which dates the commencement of a tangible effort in the establishment of a body of veterinarians, who were to give to American veterinary medicine its first history. A number of veterinarians met in Philadelphia to perfect an association which was the origin of what was to

become the American Veterinary Medical Association of to-day. They purchased a minute book, which I believe is still used by the association, but a general quarrel seems to have taken place and the records of the first meeting were destroyed—you will find in the book to which I refer the stubs of the first pages which have been cut out.

On the 9th of June, 1863, a meeting was called at the Astor House, in New York, which is generally now considered the first meeting of the association.

Among those present were: Wm. A. Wisdom, of Delaware; Dr. John Busteed, Alexander Liautard, R. S. Copeman, R. H. Curtis, A. Large, Wm. J. M. Cown, Louis Brandt, C. C. Price, W. Bannister, John Budd, E. Nostrand, Charles Burden and James Mulligan, of New York; Chas. M. Wood, E. M. Thayer, Wm. Saunders, R. Farley, J. H. Stickney, James Penniman, O. H. Flagg and R. Wood, from Massachusetts; E. F. Ripley, from Maine; R. McClure, G. Mellor, J. C. Essenwein, E. H. Palmer and Isaiah Michener, from Pennsylvania; G. W. Bowler, Ohio; Jacob Ditts, J. C. Higgins, W. R. Mankin, R. Jennings, A. Phillips, Jacob Phillips, J. C. Walton, A. C. Budd and S. Humphrey, from New Jersey; and J. K. Quickfall and John Arnold, from London.

This meeting seems to have given a more general interest and active start in veterinary affairs.

Drs. Rawson and Busteed, and Alfred Roe, Esq., obtained a number of subscriptions, and by arrangement with Dr. Liautard, leased his infirmary at 179 Lexington Avenue, for college and hospital purposes. On November 23, 1864, they opened the New York College of Veterinary Surgeons. Dr. Liautard was appointed Superintendent of the Hospital, and was the first professor of Anatomy, Operative Surgery and Clinics.

Dr. James Robertson was one of the first graduates, and he became a member of the teaching faculty in 1868. In that year a reception was given to Prof. Gangee, of London, who visited this country to investigate cattle diseases.

During this decade there were few graduate veterinarians in

this country. Dr. Liautard held his diploma from the Imperial Veterinary School of France ; Dr. Stickney, of Boston, had received his from the Royal Veterinary College, London ; and the dozen others were foreigners, mostly Englishmen, with the Royal College degree. In 1875 the apple of discord again fell into the cage of the profession and the faculty of the New York College resigned almost in a body and organized the American Veterinary College, which is now completing its quarter century of existence.

This decade saw the establishment of the two veterinary schools in Canada, and the founding of the AMERICAN VETERINARY REVIEW, by the U. S. Veterinary Association, with Prof. Liautard as its first editor. Up to this time the meetings of the United States Veterinary Medical Association had been confined to Philadelphia, New York and Boston.

In the eighties more rapid strides were made. The United States Veterinary Medical Association extended its meetings to Cincinnati, Baltimore, and the West, securing a membership really more national in character. Three-year veterinary schools were established at Harvard, and the University of Pennsylvania, and a number of veterinary schools sprang up through the West, in Ohio, Illinois, Iowa, Minnesota, Kansas and elsewhere. The Bureau of Animal Industry was founded in 1884, under the strong guidance of Dr. D. E. Salmon, and after exterminating contagious pleuro-pneumonia from the American continent, became a power which brought the value of the veterinarian before the public and gave new openings for a livelihood to the veterinary graduates of the new schools.

In 1880 the *Journal of Comparative Medicine and Veterinary Archives* was established. During the eighties a number of State veterinary and other local societies were organized, one of which, that of Pennsylvania, whipped and led by the untiring zeal of Dr. W. Horace Hoskins, has become a rival of the American association in the value of the work it has done.

The last decade of the 19th century has seen a steady advance in the work of the previous ten years. The United States

Veterinary Medical Association has spread its ægis still further West, and over the Southern mountains of Tennessee, and it has extended its hand of professional brotherhood to Canada in the North, becoming the "American" instead of the "United States" Association. Most of the two-year schools of former days have increased their standard of education to the recognized minimum of a three-years course.

Laws regulating the practice of veterinary medicine and establishing State boards of veterinary examiners, have been enacted in a number of States, and show a good disposition on the part of the various communities, however stupidly and justly they may, like many other laws, err in their results.

This closing year of the century finds old differences healed here in New York City and an amalgamation of the two colleges which separated twenty-five years ago, but which now put shoulder to shoulder under the new name of the New York-American Veterinary College, or the Veterinary School of the New York University, with Professor Liautard still holding the reins. Now that unity has been established, we will hope to see the Assembly at Albany give to the Metropolitan school the same financial support which it does to its rural sister in Ithaca.

In literature there has not been as much accomplished as might be hoped for. The AMERICAN VETERINARY REVIEW and the *Journal of Comparative Medicine* stand proud peers of their European colleagues, but their standard of excellence has been at the sore cost of labor and money of a few enthusiastic individuals. Some valuable scientific writings have emanated from the pens of employees of the Bureau of Animal Industry. Of practical veterinary works, Prof. Liautard stands at the head of the authors, in numbers and value of his works.

Mr. Chairman and Gentlemen, I have occupied more time than I intended to do and yet find I have only given a summary of what I would like to have said. I believe the data of my headings to be accurate and that a detailed history of American veterinary medicine during this century would be valuable and

interesting if one would take the time to compile it. It has been a great pleasure to be at this meeting, and I thank you for your attention.

But, Mr. Chairman, I will detain you for one word more: I believe that I have forgotten myself as a factor in the making of the history of American veterinary medicine. When, as an assistant of Dr. Joseph Leidy, the anatomist, and Dr. D. Hayes Agnew, the surgeon, I took their advice; that the study of veterinary medicine opened up a field for a more interesting and broader scientific life than the routine of a simple human practitioner and prepared myself to found the Veterinary Department of the University of Pennsylvania; when I broadened my conception of animal life by becoming a comparative anatomist instead of remaining a simple human anatomist; when I worked during two years in the laboratories of Nocard, Chauveau and Pasteur, Virchow and Koch, and Ercolani, familiarizing myself with the bacteriological studies which led to our present knowledge of tuberculosis, glanders, and the other contagious diseases; when, as a teacher for twenty years I found that my most interesting teacher and my most valued knowledge came from my study of Comparative Physiology, Pathology and Hygiene; finally, when I added the diverse scientific knowledge, given me by my study of veterinary medicine, to the knowledge of human medicine which I had acquired at the University of Pennsylvania, and in fifteen years of human practice, and had had the experience of fifteen years as a Chief Medical Officer of the National Guard of Pennsylvania, in which I had charge of such bodies of men as the thousands remaining in the Conemaugh Valley after the Johnstown flood, and 7500 troops of Pennsylvania during the Homestead riots: then, gentlemen, I was amused, though some of my friends were annoyed, last year when I became the best advertised and the most universally damned "Horse Doctor" in America.

The yelping of the jackal newspapers, playing upon the hysterical sentiment of the public, because they had no further sensational war news, or other exciting information to furnish,

and who wanted to commence an attack on the administration, had picked me, because I had widened my knowledge of medicine in learning the scientific truths of diverse animal life instead of limiting it to that of one animal, man, and, found opprobrium in the title of "Horse Doctor." To me personally the attacks of that portion of the press were like water on a duck's back. I knew that I had the confidence and recognition of my work, which was all I desired, of the President, of the Secretary of War, of General Miles, and of my own Commanding General, Major-General Brooke, now Governor-General of Cuba. I knew that the First Army Corps, of which I had the medical charge, had a better organization, better hospitals, more medical supplies, and, up to the time I left Chickamauga for Puerto Rico, a smaller sick list and death rate than that of the other corps of the army. All this is record in the official papers in Washington, and will be history when they are published. Therefore, I had no cause to regret that I was, and I am proud that I am, a veterinarian.

FATAL PNEUMOMYCOSIS IN THE HORSE.

BY JAMES LAW, M. R. C. V. S., ITHACA, N. Y.

Dean of the New York State Veterinary College.

Read before the New York State Veterinary Medical Society, September 9, 1899.

I wish to draw attention to some of the clinical features of a microbial affection of the horse, which so far as I know has not been described in veterinary literature. The bacteriological character of the disease will be treated of by Dr. Moore.

The first intimation of the disease came to us in a letter from Dr. Charles H. Cook, of Rochester, which will sufficiently explain itself. He says: "I was called about fourteen miles northeast of here yesterday, in consultation with Dr. Burns, of Fairport, to see some horses. There were three horses originally, all on the farm, and all were taken Dec. 10: pulse 65; temperature 101.4; lips cracked, somewhat swollen; throat sore; some difficulty in swallowing, but ate a little. Dec. 11:

pulse 50; temperature 100° ; apparently improving, and discontinued visits. Dec. 14 called to one which was worse again, but owner said the other two were all right. The one he was called to had pulse 75, temp. 106° , and colicky pains, and died on the 15th. While there the doctor thought it advisable to examine the others and found the pulse 78 to 80, and temp. 106° . No. 2 died yesterday, 17th. When I arrived shortly after noon yesterday, I found No. 3 in a dying condition, pulse 80 and intermittent; temp. 106.8° , lips cracked, breath foetid, and submaxillary glands enlarged. In each case the limbs were somewhat swollen. The rectum forced out, continuous straining, discharging a serous fluid colored with blood; pain in the bowels. We were both satisfied No. 3 would not live but a few hours, so we had that one destroyed. * * * In No. 2 on post-mortem the larynx and whole length of the trachea were somewhat discolored; remaining organs normal, but a sickening odor came from the body. No. 3 showed similar symptoms. Dr. Burns had three similar cases, about six miles south of this place, in one stable, and all three died after about a week's sickness, presenting the same symptoms."

There were sent in two separate bottles larynx and submaxillary glands, and inferior part of the trachea and bronchi. Also a bottle of the drinking water used. The tissues actively congested, especially the mucosa and submucosa. As Dr. Moore will show, they contained a peculiar microbe of which he maintained a succession of cultures.

Some interesting points may be noted. There is some presumption that the infection followed the water-shed. The first three cases occurred farther south and the flow of the creeks in this district is northward into the lake. For a variable time in each case there was little fever, and upon this supervened a rather extreme hyperthermia, and at the necropsy there was no old lesion, but merely an extreme congestion of the mucosa. The indications were essentially those of bacteridian poisoning or of ptomaine and toxin poisoning which only appeared at an advanced stage, when presumably these poisons had entered the circulation.

A case of the same kind came under my notice in May, 1899. An aged, white, part-Arab mare, at Forest Home, had been ailing for a day or two before I was called. I found her somewhat off her feed, but with a full bright eye, alert motions, erect carriage of the head and ears, and only very slightly accelerated pulse and breathing. In short, she appeared a comparatively healthy horse on cursory examination. The temperature, however, was 106, and the conjunctiva had a deep yellowish-red color approximating to what is usually seen in contagious pneumonia (*brust-seuche*). There was a slight cough, but no laryngeal tenderness, no distinct crepitus in the lungs, no flatness on percussion, and only a slight exaggeration of the respiratory murmur. The high temperature in the absence of marked lung lesion, or dullness, and the yellow mucosa might have suggested *brust-seuche* or some other infectious disorder producing poisonous toxins. She was treated with acetanilid 2 drams, sodium salicylate 2 ½ drams, and potassium iodide 1 dram, given twice daily.

There seemed to be little change for twenty-four hours, but suddenly on the second day, as reported by the owner, the breathing became increasingly difficult, and in a few hours and before I had been notified of the change for the worse, the patient died.

Necropsy was made the following morning in the open air, beside the grave, and revealed a generally petechiated condition of the tissues and especially of the serosæ, where this contrasted strongly with the generally blanched appearance. There was a liquid pleural exudate of a dark red color, and the whole upper half of both lungs showed a deep, violet hæmorrhagic congestion, resembling a dark bloodclot. Pleuritic fibroid thickening and adhesion indicated a former pleurisy from which the patient had recovered. On cutting into the congested portion of the lung it was found to be literally gorged, the blood dripping from the cut surface, and the mucosa and submucosa of the bronchia were of a deep red hue and greatly thickened by extreme congestion. This remarkable congestion of the mucosa extended along the air passages so as to involve the larynx and pharynx.

As both symptoms and lesions pointed to an infective agency, specimens of the exudate, blood and congested lung were taken in sterilized jars to the bacteriological laboratory. In these Dr. Moore found and recognized the same microbe which had been present in the Monroe Co. cases, and with his cultures the following experiments were conducted.

Experiment No. 1.

A worn-out horse in otherwise fair health was injected in the left lung with 10 c.c. of culture from the microbe from the Forest Home mare. Six hours later the injected animal was dull and stupid, with a temperature of 106, and a yellowish-red tinge of the conjunctiva. There was some acceleration of breathing and pulse, and anorexia, but by the following morning the temperature had fallen to 100, the pulse and breathing were nearly normal and appetite was restored. There was slight crepitus in the seat of inoculation, with tenderness on percussion. The animal was kept for a number of days, but no further decided febrile reaction took place. When killed the chief lesion found was a thickening of the pleura 10 inches in diameter and a large pulmonary nodule with surrounding consolidation of the left lung, in the seat of the inoculation. In this exudate Dr. Moore found, as had been expected, the now familiar microbe of the Monroe Co. cases and the Forest Home mare.

Experiment No. 2.

June 6, a small white mare, which had suffered from detachment of the left hind hoof and had nearly completed the growth of a new one, was at 10 A. M. injected in the left jugular vein with 10 c.c. of a culture from the lung of the Forest Home mare. At 3 P. M. the temperature was 107.8, respiration 52, pulse 58; she was careless of food, perspired under the headstall, and had dark red conjunctiva and pituitary membrane. The temperature of the day was 90 with a high dewpoint and a fresh northwest wind. June 7, temperature 102.3, respiration and circulation quiet, almost normal, and fed well. Temperature of air 89. June 8, 5 P. M., temperature 101, respiration 26, pulse 36. Feeding well.

June 10, pulse and breathing normal; temperature 101. Swelling like a walnut in the seat of the injection. At 12 noon injected in right jugular 14 c.c. of the culture of the Forest Home microbe. At 5 P. M. temperature 105, respiration 15, pulse 66. At 7 P. M. temperature 102.2, at 4 P. M. 101, respiration 6, pulse 42. Is lively and eating well. Has swelling in seat of injection.

June 12, 3 P. M., temperature 102. Injected in left side of thorax 60 c.c. old culture of Forest Home microbe. Just after the injection she had abdomen tucked up, and showing a pleuritic ridge, and she pawed and looked backward toward the left flank. At 5 P. M. the temperature was 106.5, pulse 80, respiration 17, the fæces bore a coating of mucus, the conjunctiva was yellowish-red. At 7 P. M. temperature 105.7.

June 13, 8 A. M., temperature 103.3, at 5 P. M. pulse 82 and irregular in number, pleuritic ridge, insensible loins, crepitus on lower part of the left intercostals, conjunctiva dark orange-red. Took pus from left jugular furrow in Petri dish for examination and found the microbe. At 7 P. M. temperature 105. June 14, temperature 8 A. M., 103.3; 5.45 P. M. 105, pulse 70 and irregular, no respiratory murmur in the lower part of the left lung to a depth of six inches, passes white purulent matter at completion of micturation, loins quite insensible to pinching.

June 15, 8 A. M., temperature 100.8; 5 P. M., 102.2.

June 16, temperature 8 A. M. 101, 5 P. M. 102, 7 P. M. 101.6. Pulse 64, very irregular, percussion on left side of chest causes much pain, eye dark red, nasal mucosa bluish.

June 17, temperature, 7.45 A. M. 100.8, 5.45 P. M. 101.6.

June 18, temperature, 7.45 A. M. 100.8, 5.45 P. M. 102.8.

June 20, temperature, 7.45 A. M. 101.8, 5.45 P. M. 102.2.

June 21, temperature, 7.45 A. M. 100.4, 5.45 P. M. 101.

June 22, temperature, 7.45 A. M. 100.2, 5.45 P. M. 102.

June 23, temperature, 7.45 A. M. 101, 11 A. M. 102.

At 11 A. M. gave by mouth one quart culture of Forest Home microbe.

June 24, temperature, 7 A. M. 103, 3.15 P. M. 101.5.

June 25, temperature, 7 A. M. 100.5, 3.15 P. M. 101.2.
June 26, temperature, 7 A. M. 100.5, 3.15 P. M. 101.8.
June 27, temperature, 7 A. M. 100, 3.15 P. M. 102.
June 28, temperature, 7 A. M. 100.7, 3.15 P. M. 102.4.
June 29, temperature, 7 A. M. 101.2, 3.15 P. M. 101.5.
June 30, temperature, 7 A. M. 100, 3.15 P. M. 100.8.
July 1, temperature, 7 A. M. 100.6, 3.15 P. M. 100.8.
July 5, temperature, 5 P. M. 100.

NECROPSY.

July 17 (41 days after the first inoculation, and twenty-three days after the infectious culture given by the stomach) subject killed. There was still some suppuration in the left hind foot and a large ringbone which preceded the loss of the hoof. General condition good.

Firm old standing adhesion of the left lung to the ribs from the sixth to the fourteenth and vertically from above the seat of the inoculation to the sternum. Separation laid bare a large suppurating cavity, irregular in outline and encroaching on the surface layers of the lung. There was at least three-quarters of a pint of exudate of a pinkish-brown color in the pleural cavity. This coagulated on exposure. At intervals on the pulmonic pleura and on the mediastinal covering of the free margin of the cardiac auricles there was more or less exudate into the connective tissue.

The right pleural sac was the seat of old standing neoplasms, forming nearly circular elevated white patches on the surface of the lung, but with no adhesions to the ribs.

. Petechiæ existed at intervals on the pleura and pericardium. The tracheal and bronchial mucosæ and the submucous tissue were free from the dark hæmorrhagic congestion which characterized the Forest Home case, from which the microbe was taken. At the seat of the injection into the jugulars there remained some thickening of the subcutaneous tissue, but no pathological formation was found on the serosa of the vessels.

REMARKS.

Without venturing to encroach on the pathological and bacteriological results which will be dealt with by Dr. Moore, I may gather one or two of the lessons to be learned from this series of cases.

First. We have a succession of cases of acute febrile disease in the horse due to a bacteridian infection, and manifested by an extreme and often fatal congestion of the lower respiratory mucous membrane and lungs (possibly also of the other organs in special cases).

Second. In the casual (Monroe Co.) cases there was a preliminary stage in which the fever was scarcely marked, followed by a period of extreme hyperthermia (106°), and there was great danger of a speedily fatal result. The illness in a mild form extended over about five days, whereas after the appearance of the hyperthermia the animal did not survive two or at most three days more. The Forest Home case was not seen until the hyperthermia had appeared, but she died within forty-eight hours thereafter. Our two inoculated cases did not die during the hyperthermia, but they showed this reaction in a very marked form, whether the virus was introduced into the blood, or the lung and pleura. In these the maximum temperature was probably reached by the fifth or sixth hour after injection, and it had returned to near the normal in twelve to twenty-four hours. In the thoracic inoculation 106.5° was reached in two hours, and as an afternoon temperature, 105° was maintained for two days. Then comparative defervescence ensued. The low morning and high evening temperature were no less remarkable.

The small amount injected into the veins (10 c.c. and 14 c.c.) forbids the idea that hyperthermia resulted from the mere addition of liquid to the circulating fluid, and this was corroborated by the high temperature which was more promptly secured by the inoculation into the chest. The enormous dose administered by the mouth produced a more moderate and tardy febrile reaction than the smaller doses inoculated. This might be partly explained on the ground that the system had already become

partially immune by reason of the repeated doses, but also by the destructive action of the gastric and hepatic products on the toxins.

In the microbe before us we have the example of an infection which may by its unaided action bring about a speedily fatal disorder of the respiratory organs ; or, which lodged in the tissues which are already the seat of inflammatory or other morbid action, may speedily transform a comparatively benign disorder into an almost certainly lethal one. It is a type of other infections, which, complicating a simple and comparatively harmless disorder, may introduce a most dangerous element. More light is wanted as to other elements of this kind, and the present observations are brought forward as a contribution to the knowledge of a class which it may be hoped will help to place medicine nearer than before to taking her place among exact sciences. An encouraging feature of the present infection is that, however dangerous in their attack, its toxic products appear to be early modified or eliminated, so that, if the subject survives two days of extreme hyperthermia, there is a good prospect of recovery.

REPORTS OF CASES.

“ Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

AN INTERESTING CASE.

By W. H. DERR, V. S., Mansfield, Ohio.

On September 26, 1899, Mr. Ed. Ford, groceryman, drove a bay horse, six years old, 15-2 hands high, to my office, and told me he seemed sluggish and drowsy, not driving with his usual freedom. Everything seemed normal, except eyelids, which were droopy, and his front legs were slightly swollen below the knees. I supposed his liver and lymphatics needed toning up, as he was being fed quite heavily. I gave a cathartic, and advised light diet for a few days. The physic operated very well, and in two days he was placed under Fowler's solution and nuxvomica twice daily.

In a few days he was again brought to the office, and showed no improvement. October 1 I was called to see him. Appetite good, pulse 36, temperature 100° F., bowels regular and of good color, legs swollen to midway between knee and elbow, the swelling having the characteristic abrupt ending of purpura; hind limbs and sheath normal.

I suspected scarlatina, but there were no symptoms except the swelling, with a mild sore throat. I placed him under absorbents and stimulated the kidneys.

On October 4 I was hurriedly called to see the patient. Not being in at the time, I did not see him for an hour after the telephone message. I found the patient with a temperature of 101 1/2°, pulse 40, sweating profusely, tossing head and showing general symptoms of abdominal pain, with considerable tremor of the muscular system. Fifteen minutes before the attack he had drank moderately of cold water from trough, being previously used to water with the chill off, and I attributed the suffering to the cold water.

I found on examination that the breast was enormously swollen as far up as the neck, particularly between the front legs and in front of the breast, with very prominent enlargement showing plainly in the location of the thymus gland on each side of the trachea, protruding larger than a base-ball, with no heat nor tenderness to the touch.

A few minutes after calling he began to eat his hay, and in twenty minutes was entirely quiet, dried off and ready for his supper.

He continued in the same condition, except that the swelling extended under the belly, two-thirds of the way back to the sheath. In all his sickness, his hind legs and sheath remained normal.

I then gave him mild heart stimulants, absorbents and diuretics, with light diet of oats and bran and good hay. His spirits remained good, but he had some difficulty in moving on account of the swelling. He continued with some abatement of the swelling until the 9th, when he was turned into the yard. He enjoyed it, and walked about and ate quite freely of grass. In twenty minutes he had another attack, sweating freely, pawing, tossing head, and tremors. In thirty minutes he was again quiet, without the use of anodynes. The swelling seemed reduced, but the enlargement at seat of the glands was more prominent. He was then left in his box until the 13th, with, I thought, improvement.

On the 13th he was exercised a very little and tied in the sun for two or three hours. On the morning of the 14th he was again exercised, being given a little more walk than on the 13th. When two blocks from home he was again taken with an attack and was taken home with difficulty, and had a repetition of the other attacks. In twenty minutes he was again all right, but his appetite was not so good. He would start at his food ravenously, but leave a part of two quarts of oats. Swelling about the same, temperature 100° , pulse 40. On the evenings of 14th, 15th and 16th, at 6 o'clock, nearly to the minute, he had an attack of pain lasting about twenty minutes. From 14th to 16th appetite grew less, circulation a trifle faster, eyes more droopy, death taking place at 6.20 P. M. of 16th. After a severe attack he reared up and fell dead without a struggle.

Circumstances, much to my regret, prevented a post-mortem, which might or might not have revealed the cause, but I am at a loss to understand the case unless my diagnosis of incipient purpura was correct, and then many symptoms remain unexplained.

During his sickness there was no irregularity of the heart-beats, no distressed breathing, no constitutional symptoms except swelling and attacks of pain, each of which, up to two days before death, was preceded by exercise of greater or less extent.

If the editor or any of my professional brothers can give any information on this case from my meagre description, either personally or through the pages of the REVIEW, they will bestow a great favor on me.

What caused the severe attacks of pain, and what caused death?

THE USE OF CHLOROZONE IN PUNCTURED WOUNDS.

By E. R. FORBES, V. S., Pensacola, Fla.

Case No. I.—There were two deeply punctured wounds of the femoral region in a horse; they were three inches apart, 6 and 4 inches deep respectively. They were treated by cold-water irrigations, followed by chlorozone (1 to 6 of water), and iodoform gauze packing. The packing was discontinued after the third day, as it fretted the patient too much and the chlorozone appeared to be sufficient. Rapid recovery. In our climate punctured wounds in this region are very dangerous, owing to phlegmonous inflammation, followed quickly by mortification and death. In these two cases there was absolutely no inflam-

inatory action, which I believe was due solely to chlorozone.

Case No. II.—Punctured wound in groin, six inches deep. Treatment: Cold-water irrigation and chlorozone. No inflammatory action and rapid recovery.

Having been always a strong advocate of antisepsis, and having used every antiseptic introduced in the last twenty years, I must say that as far as I have used chlorozone it has given me the best results.

SCHMIDT'S TREATMENT LITTLE SHORT OF SPECIFIC.

By G. R. STEWART, V. S., Calumet, Mich.

I have given Schmidt's treatment for milk fever a very good trial, and find it to be almost a specific. The last case I had the pleasure of trying the treatment on was a Galloway cow, extra fat, and had given birth to several calves previous to this one and was never affected before. This cow gave birth to a fine big calf on Tuesday night. Wednesday morning the owner noticed her staggering and immediately sent for me. On my arrival found her still on her feet, but very unsteady and apparently did not notice anything, not even the calf, which was in a stall beside her. I ordered calf to be taken away, as the stable was very small; also the partitions torn down and a good bed of straw made for her. I then gave her an injection of 150 grs. of potassium iodide and left, telling the owner to leave her alone, and that she would go down and be unable to rise in a short time; but not to be alarmed at that, as it is a natural consequence of the disease. Six hours later I called and found her down, head around to side, pupils dilated. Gave her another injection of 130 grs. At the same time the owner and his neighbors, thought it very foolish on my part to try to do anything with her, as they said when a cow has milk fever they never get better, and that she was a very bad case, which was the truth. I had to give her five injections before she got on her feet. She was down about 50 hours. You may imagine what a wonderful "cow doctor" I was when that cow got up.

This cow lost about 200 pounds of flesh, the epidermis peeling off all over the body; the milk was very thick and of a curdled nature for about two weeks, at which time it resumed its normal condition. The cow is doing finely, and the owner and his neighbors are quite enthusiastic over the new treatment.

I could relate many other good results from the new treatment.

EXTRACTS FROM EXCHANGES.

BELGIAN REVIEW.

FOREIGN BODIES IN A HORSE AND IN A COW [*By Prof. Hendrickx*].—As the author remarks, how strange foreign bodies sometimes behave when once introduced in the organism of an animal. As a proof, read the two cases that he records: (1) A four-and-a-half-year-old horse was brought to him for a small wound a little below and in front of the right scapulo-humeral joint. Much pus was discharged and the leg had to be cleaned several times a day. The history of the animal was simple:—Four years before, when a colt, he was found one day very lame; he had only a little scratch in front of the shoulder; he was treated and the lameness disappeared, yet the discharge kept up. When two years old he was broken to work and since has been working, free from lameness and still discharging. The wound was probed with difficulty and found running upwards towards the withers. The animal was cast and at the point where the probe seemed to end, an incision was made. It was 8 or 10 centimeters deep; at its bottom the continuation of the fistula was found and at last the bottom reached, from which a piece of a walking stick was extracted. It was one inch in diameter and twenty-one centimeters long. It had traveled 38 or 40 centimeters from its place of entrance, below the shoulder joint. The animal kept it four years in his muscles without apparent trouble, not even the slightest disturbance in locomotion. (2) A cow, coming back from the field, seemed ailing. She groaned, refused her food, had colic and tympanites. She was bled at the jugular, fed on low diet for 24 hours, and then appeared in perfect health. Three days after a swelling as big as a hen's egg showed itself between the second and third lumbar vertebræ and in its centre a little black point was felt. It was taken hold with forceps and a rib of an umbrella sixty-one centimeters long was extracted. This rib was perfectly straight and it is a question how as such it was possible for the cow to swallow it and be sick only for a few hours afterwards. —(*Annales de Bruxelles*.)

OVARIOTOMY WITH ELASTIC LIGATURE.—Several months ago an article appeared in the *Annales de Bruxelles*, a translation by Prof. Hendrickx of a paper published by a Swiss veterinarian (Mr. Bertschy), in which are several practical observations on ovariectomy. The author recommended the application

of a ligature as a means of castration, with or without amputation of the ovaries. An elastic band was then recommended. Director Degivé, who at that time had fully indorsed the new method, said that it was called one day to take the place of all means heretofore patronized for the castration of our large domestic females, mares and cows. Since then Director Degivé has had occasion to apply the elastic ligature in his practice, also other veterinarians, and success has always followed the operation. The elastic ring used is secured tight by means of a little glass bulb or pearl, which is perforated. Through the ring the elastic band is passed. It then forms a little loop, through which a double sliding cord is introduced, and while this hangs out of the vulva, by pulling upon it the thickness of the ring is reduced, the glass ball can be pushed nearer the soft tissues, the ring is made tighter on them. When the cord is enlarged the elastic band resumes its thickness in front and below the glass ball, which is left in place holding tight. The process is said to be simple in its application and entirely free from danger, with the simplest application of antiseptic.

A CASE OF LINGUAL AND LABIAL PSOROSPERMOSIS IN THE HORSE [*By MM. Hendrickx and Lienaux*].—This affection is quite rare in the horse, although it is frequent in swine and in ruminants. Nedamysolzky has found them in the cervical muscles, diaphragm, œsophagus, walls of the pharynx and some muscles of the extremities. Schulz has met them in the muscles of a horse paralyzed in the fore legs. The authors have seen them in the tongue and the upper lip of a four-year old, which presented the following symptoms: superior lip trebled in size and stiff. Its internal face is roughened, covered with small nodosities; it has a grey-yellowish tint. The mouth is partly closed and saliva escapes from both commissures. The free portion of the tongue is four times its size and overfills the lingual canal. Its consistency is much altered. It is hard like condensed fibrous tissue; the movements of the organ are nearly normal when made from forward backwards; lateral ones are more difficult. The surface of the organ, instead of being smooth and soft, is bosselated, rough and presents numerous little nodosities. Here and there are superficial solutions of continuity, traumatism inflicted by the teeth probably. The animal is otherwise in normal condition except thin. Microscopic examinations excluded actinomycosis, tuberculosis and botryomycosis, but revealed the presence of a large collection of sacroporids which infected the whole organ. A treatment of

iodide of potassium was recommended, and recovery gradually took place by degrees and was soon able to take hold of his food and return to work.—(*Annales de Bruxelles.*)

SPANISH REVIEW.

EXOSTOSIS OF THE SCAPULA [*By Luis Nunez*].—At the abattoir a nine-year-old steer was slaughtered; he presented a large tumor of the right scapula, quite sharp at its superior part and about ready to ulcerate through the skin. Notwithstanding its size the tumor did not interfere with locomotion, and the animal was in good condition. There was no indication of actinomycosis. At the post-mortem a large exostosis was found, sequel of an incomplected fracture of the acromion spine. Relieved of all surrounding soft tissues, the bone weighed 9 pounds (4 kilos and 750 grammes).—(*Rev. Veterin.*)

LAMENESS DUE TO CYSTICERCI [*By Martin Ciga*].—A three-year-old bull became lame on the left fore leg without apparent cause. The lameness seemed to be located in the upper part of the leg. Rheumatism was suspected and the animal treated accordingly and recovered. Some eight months later the trouble reappeared, but was more severe, and this time on the right leg. There was a swelling on the fore arm, indicating the seat of the lesion. The same diagnosis was made and the same treatment prescribed. But instead of improving, as in the first attack, the lameness increased, the swelling became more prominent, and then parasitic origin was suspected. The animal was in good condition; he was incurable, and was sent to the slaughter-house. The thoracic and abdominal organs were sound; but cuts made through the thickness of the muscles revealed the presence of numerous cysticerci, reddish in color and scarcely as big as the head of a pin. Those were found also in the muscles of the shoulder, the intercostals and the abdominal walls. The author believes them masses of cysticercus semicollis.—(*Rev. Veterin.*)

SOME POISONOUS PLANTS.*

RATTLE-BOX.

Crotalaria Sagittalis L. Other Names: Rattleweed; Wild Pea. Fig. (10)
Description and Where Found.—A hairy annual, 3 to 18

* Abstracted from *Farmers' Bulletin* No. 86, U. S. Dept. of Agriculture, by W. J. Martin, M. D. C., Kankakee, Ill.

inches high, with simple undivided leaves, 1 to 2 inches long, and small, yellow pea-like flowers appearing in July. The seed-pods are about an inch in length when mature, and are nearly black. They are much inflated, and as the walls are stiff and thin and very resonant, they make excellent miniature rattles when the seeds have become detached from their fastenings inside of the pod. The rattle-box is native in low, sandy soils from the Atlantic westward to Minnesota and eastern Kansas; also in New Mexico. It is common in Connecticut, New Jersey and North Carolina, and in some years is very abundant in bottom lands along the valley of the Missouri, in South Dakota and Iowa.

Poisonous Character.—The poisonous constituent unknown, but it resides both in the leaves and in the seeds. Horses, and sometimes cattle, are killed by eating grass or meadow hay mixed with the plant. They are not poisoned so often by eating the plant in the field. Public attention was first called to the poisonous nature of rattle-box by Dr. Stalker, of Iowa, who, in 1884, while investigating the cause of "bottom disease," then prevalent among the horses of Iowa, was led to believe that it was mostly if not altogether attributable to this plant. Experiments were made which proved the supposition to be correct.

Symptoms.—As generally described from accidental cases, the symptoms are much prolonged, death resulting only after several weeks or months. There is a general decline of vigor, and a gradual loss of flesh, as observed in the case of loco, with which this plant is closely related. The rattle-box does not, however, appear so often to produce the craziness characteristic of loco.

The percentage of rattle-box in meadow hay will be much reduced if the fields are burned over when the seeds mature the preceding summer. The growth of perennial grasses will not be materially affected thereby.

DWARF LARKSPUR.

Delphinium Tricome Mich. Other Name: *Staggerweed (Ohio)*. Fig. (6.)

Description.—The genus *delphinium*, formed by the larkspur, is composed of erect herbs, with palmately lobed leaves, and an elongated cluster of showy flowers. These are commonly blue, and are further characterized by the absence of green parts, and the presence of a peculiar spur-like appendage.

There are over 25 species native to the United States. Few have a very wide distribution, but some of the western species are extremely abundant in their natural place of growth. They have a general reputation of being poisonous to cattle.

The dwarf larkspur is a smooth, simple-stemmed perennial, 6 to 12 inches high, with a tuberous root, deeply five-parted leaves, and a long, loose cluster of blue (sometimes white) flowers, which appear in April and May. It grows in clayey soil and open woods, from Pennsylvania and the mountains of North Carolina to Southern Minnesota. It is especially reported from Ohio as fatal to cattle in April, when the fresh leaves appear.

WYOMING LARKSPUR.

Delphinium geyeri Greene. Other Name : *Poison-weed*.

Description and Where Found.—A somewhat hairy perennial, 10 to 20 inches high, with a large spheroidal tuft of rather thick, dull-green leaves, and a central column of deep azure-blue flowers. A common high prairie plant of Wyoming and Northern Colorado. It is reported to be most troublesome of the poisonous plants of Wyoming. Ranchmen suffer considerable loss from it, especially in early spring, when the dark-green tufts of foliage are conspicuous features of the otherwise dry and barren landscape.

PURPLE LARKSPUR.

Delphinium Menziesii D. C.

Description and Where Found.—A somewhat hairy, tuberous-rooted perennial, about a foot high, with a basal cluster of finely divided, long-stemmed leaves, and a single column of showy flowers, which appear at any time between April and July. The flowers are few in number, but are extra large, being from 1 to 1½ inches broad. This species is found native on hillsides from the vicinity of San Francisco to British Columbia and eastward as far as South Dakota. In Montana it is very common.

Poisonous Character.—The percentage of fatal cases in cattle which have eaten this and other larkspurs is said to be small. A rough estimate by a cattleman places it at about 20 per cent. for one species of the group, when the animals are not properly treated, and 5 per cent. otherwise. This is probably a low estimate, however, for in a case of poisoning from *D. Menziesii* that occurred in Montana in May, 1897, and was reported by Dr. E. V. Wilcox, nearly 600 head of sheep were affected, 250 of which died.*

* Since the above was in press, Dr. S. B. Nelson, professor of Veterinary Science in the Washington State Agricultural College, has published (Bull. No. 22, Bureau of Animal Industry, U. S. Dept. of Agriculture) the results of an experiment made by himself, in which as much as 24¾ pounds of the fresh leaves of this plant were fed to a sheep within a period of five days without any apparent ill effects. An experiment made by Dr. Wilcox (Bull. No. 15, Montana Agricultural Experiment Station), shows that the extract from less than an ounce of the dried leaves killed a yearling lamb in two hours, the dose having been given by the mouth.

It is an excellent precaution to allow animals in pastures containing larkspur only when well fed, and then only for short periods, until they become thoroughly familiar with the deleterious nature of the plants.

The tall mountain larkspur (*Delphinium trolliifolium*), sometimes known as cow poison, grows in moist, shady places from Monterey, Cal., to British Columbia. Reports of poisoning come from California and Oregon. The poisonous qualities of this species have, however, been considerably questioned.

A lavender-colored, fleshy larkspur (*Delphinium recurvatum*), which grows in moist saline soils south of San Francisco and Stockton, in California, is particularly reported as fatal to animals in San Luis Obispo county. The seeds of the European stavesacre (*Delphinium staphisagria*) has long been regarded as a powerful poison. The seeds of the commonly introduced larkspur (*D. consolida*) is regarded as less poisonous; the leaf is reputed to be poisonous to cattle in Europe. The leaf of the stavesacre has only recently been shown to be poisonous. The properties of the roots of these and other species are not well known. Little or no attention has as yet been paid by American chemists to the native larkspur, hence it is not known how poisonous they are in comparison with the European species.

DR. LIAUTARD AND THE LOVING CUP.

It was the intention of the junior editor of the REVIEW to have published the accompanying illustrations in connection with the report of the presentation of the loving cup to Dr. Liautard by the Alumni Association of the American Veterinary College on the occasion of its twenty-fifth anniversary, which was celebrated by a banquet at the Manhattan Hotel, New York City, Sept. 5th. A satisfactory photo of the cup could not, however, be obtained, until Dr. Robert W. Ellis, the temporary custodian of the trophy, exerted his talents in that direction. Dr. Ellis' letter of transmissal explains itself so well that it is herewith given in full.

NEW YORK, November 20, 1899.

Dear Dr. Bell:

I send you by this mail a photograph of the cup presented to our dear old Dean, and pioneer of our profession in America, Prof. Liautard, at our last alumni dinner and silver anniversary of the American Veterinary College, by his boys, the Alumnæ. This family of boys is so

large, that I fear many of them could not be present to take an active part in that celebration, and witness the presentation of this token of love and esteem, and appreciation of a quarter of a century's work *well done*; and so I have sent you this photograph showing one of the three sides of the cup containing an engraving of his face, for reproduction in the REVIEW, that it may reach all the boys, and trust that it is good enough to reproduce, being my own work, and decidedly amateur, and amateur work on silver cups, with the object of reproducing an engraving thereon, is not "a cinch." The other two sides, you can describe in your own well selected language.

Yours very truly,
ROBERT W. ELLIS.



At the great "Jubilee" there were many faces which are seen only at long intervals: class-mates who had not looked upon each other since the proud night that they had marched across the stage of Chickering Hall and received from President Weisse the roll of parchment as a reward of long hours of patient and hard study, and who now greeted each other with almost the enthusiasm of old lovers, joyfully going over the events of their college life and telling the story of their successes and failures after embarking upon the realities of the practice of their art. By one of such, Don C. Ayer, of the class of '87, now the chief of the great meat inspection force at Omaha, we were shown a photograph of the Dean, taken soon after he landed in America, in the early sixties, and, by promis-

ing to preserve it very carefully and return it unsoiled, we are enabled to present this to our readers—only a few of whom will be able to remember the subject as he appears in this likeness.

BIBLIOGRAPHY.

THE DISEASES OF POULTRY. By D. E. Salmon, D.V.M., Chief of the United States Bureau of Animal Industry. Washington, D. C.: George E. Howard & Co.

Comparative medicine is already under many compliments to the studious and scholarly head of the Bureau of Animal Industry, and it is again made his debtor by this latest contribution to a subject to which he has given a great deal of thought, and to which the vast majority of veterinarians have given so little. So light has been the literature upon the subject of the diseases of poultry in the English language that the small volume under consideration is the first that has been written, and for this reason it becomes of greater value as occupying exclusively this field. In his introduction the author gives some idea of the immense commercial importance of birds in this country by furnishing from the last census the statement that there were in 1890, 258,871,125 chickens or dung-hill fowls and 26,738,315 other domesticated fowls, while the earnings of American poultry have been estimated from \$200,000,000 to \$350,000,000. In this chapter are also considered health and disease, the organs and apparatus and their functions, common causes of disease, hygienic requirements, disinfection, objects of medical treatment, etc. Chapter II deals with diseases of the respiratory organs; chapter III and IV, those of the digestive apparatus; V, diseases of the peritoneum, liver and spleen; VI, diseases of the organs of urination and reproduction; VII, the brain; VIII, heart and blood vessels; IX, parasites and diseases of the skin; X, feet and legs; XI, infectious diseases; XII, injurious habits or vices. The book is profusely illustrated, well printed on good paper, handsomely and substantially bound in cloth or paper, and sells for the nominal sum of 50 cents for the paper binding and \$1 for cloth binding.

PROCEEDINGS OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION; Session of 1899. Edited by the Publication Committee, W. L. Williams, Chairman, Ithaca, N. Y. Published by the Association.

Promptly on time came the report of the "Proceedings" of the New York meeting, bound in cloth, beautifully printed on good paper, well arranged, well edited, and containing over 300

pages, with some new features, and perfectly indexed. Although the two most active members of the Publication Committee were *hors de combat* during the latter part of the session, they lost no time in getting down to work when they reached home, and we extend our congratulations to them and the Association on the creditable presentation of the interesting proceedings and valuable papers, many of which could not for lack of time be read and discussed, and appear in this volume for the first time, and form an invaluable addition to American veterinary literature.

The volume contains the constitution and by-laws of the Association, a new departure, and an excellent one, placing in compact and convenient form for reference this important instrument.

CORRESPONDENCE.

THE FUTURE OF THE VETERINARY SERVICE IN THE U. S. ARMY.

MAYAGUEZ, Porto Rico, Nov. 1, 1899.

Editors American Veterinary Review:

DEAR SIRS:—The future of the veterinary service in the army is one that has a most absorbing interest for the profession at large, and a peculiarly absorbing one for those of us who are connected directly with the service at present. Are we satisfied with the existing condition of affairs; are there no future steps to be taken, and has the recent improvement in the status of ten of the army positions improved the service to such an extent that there is no room left for improvement? Will the bettering of the condition of half of the present army force have any bearing on the welfare of the cavalry horse, and will the functions of the veterinarian be performed with more benefit to the service, working as he is without organization and without a governing and guiding mind? These are questions that will not down, and must be solved before any real and satisfactory results are obtained, and before the service can receive the improvement that it is entitled to under the recent partial reorganization.

We are all well aware that now there is no system of any kind in the administration of the duty of the veterinarian, no data of any kind preserved except that depending upon the taste or inclination of the individual, and it is needless to say that

these are useless from an official standpoint, noted as they are without system and without supervision of any kind.

Diseases may creep in, unsanitary conditions may exist, methods of meat and other food inspection may be unscientific, unsystematic and even perfunctory, without anyone to demand an explanation. There is no rule laid down for the veterinarian's guidance, and not even the shadow of a report made whereby the faithful, or otherwise, performance of the individual may be judged. It is true that the veterinarian is under military discipline, and that his commanding officer can and will call him to account if negligent, but is this sufficient—is it all that is desired? This supervision of the commanding officer would be important if he were a veterinarian himself, and it is all sufficient where the military administration is concerned, for under these conditions the commanding officer knows his business exactly and is a competent judge, while ordinarily his knowledge of veterinary medicine is not much more than superficial.

The authorities could remedy the present lack of system and haphazard manner of doing things in the veterinary service by appointing one of its veterinarians to supervise and direct the rest, but he in all probability would be a man ignorant of the customs of the service, more of a civilian than of a soldier, and would as a consequence be the unconscious cause of continual misunderstandings until experience (which he would have to gain with the colors) expanded his mind and showed him that he was not "the whole thing." Even should he be a man with military experience his position would certainly lack the necessary weight that rank alone bestows even in our own democratic army.

To derive the best results from the improvement in the veterinary service and to place that service on a basis where it can and will demonstrate that its work is well and thoroughly performed, where the result of this work may be of lasting benefit both to the service and to veterinary science it should have a competent head, and in this connection I would like above all others to mention the name of Dr. Rush S. Huidekoper, as a gentleman of long army experience, splendid administrative abilities, a scientist, a medical man, and certainly a veterinarian of the first order. With this gentleman at the head of affairs, with a suitable rank (major), and with the rank allowed to those who have already passed the examination, there is no doubt that results would be attained of a lasting scientific and

pecuniary character. It may be objected that there are others as well qualified for the position as Dr. Huidekoper, but it is more than doubtful, for with his training as a scientist, a veterinarian and a military man, he is peculiarly fitted for the position.

I may not have gone into the details of this matter sufficiently to point out the necessity for an organized service; suffice it to say that unorganized efforts are invariably abortive of good results, and that detailed criticism of affairs in the service would be out of place on my part. Veterinarians outside as well as in the service should endeavor to impress upon the coming Congress the importance of an organized veterinary service in the army, with a competent head, and those of us who have taken the examination should have the rank as well as the "pay and allowances" of a lieutenant of cavalry.

It is not because that some success has been attained by those who have labored for the advancement of the veterinary service in the army that efforts should be relaxed; on the contrary, every muscle should be strained and every fair means adopted to establish the service with a head that will put it on a systematic working basis. The cavalry now is existing under new conditions; animals as well as men are exposed to new and unaccustomed dangers; contagious disease is more prevalent in warm climates, and those animals under our care need more constant and more intelligent attention; food is more liable to change and deterioration in tropical climes, and the intelligence and accurate knowledge of the veterinarian more often called into play along these lines in our new possessions, and under conditions such as these there should be no doubt as to the necessity for organized action in meeting and surmounting the new problems that are daily presenting themselves, and without this organization I do not fear to say that the veterinary service of the army might just as well be allowed to remain as it was.

GERALD E. GRIFFIN,
Veterinarian, 1st Class, 5th Cavalry.

SOCIETY MEETINGS.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

The meeting convened at the Kansas City Veterinary College on Monday evening, October 23, with the following members

and visitors present : Members—Drs. Linscott, Ernst, Wright, Kaupp, Brown, Milnes, Versheldon, Cock, Stewart, Buckley, Netherton, Moore, Bennett, Sloan, Biart, Patterson, and Kelly. Visitors — Drs. Metsker, Neal, Allen, Cooper, Steel, Boyce, Groves, Nixon, Black, and about 30 students.

An interesting and instructive clinic was held at the College, 1404 Holmes Street, and the following operations were successfully performed : Ovariectomy per vagina by Dr. H. G. Patterson ; ovariectomy per flank by Dr. W. N. Nixon ; peroneal tenotomy by Dr. R. C. Moore ; neurectomy by Dr. J. B. Black ; aretynoideraphy and median neurectomy by Dr. R. C. Moore.

Owing to the absence of the President and Vice-Presidents, Dr. John Ernst, of Leavenworth, was elected President *pro tempore*.

There being no business, the association proceeded to the consideration of papers.

Dr. J. B. Wright presented the first paper, on "Actinomycosis," as follows :

ACTINOMYCOSIS

is an infectious disease and due to the entrance into the tissues of a vegetable parasite named the actinomycetes. It is characterized by the presence of suppuration and inflammatory new formations in various tissues. It has been seen in the pig, ox, horse, sheep, and also in man, but it attacks bovines by preference. For a long time this disease has been described under the name of osteosarcoma or tumors of the jaws, due, as was supposed, to the action of various kinds, such as a kick or prod with the horn. Some authors described this disease as of a cancerous or tuberculous nature. Later these facts were dispelled by Perriconi and Revolta when they discovered in these tumors the presence of a parasite divided into short filaments and club-like in shape. About two years later Bollinger began his first researches on these tumors on the jaws of the ox, and demonstrated a cauliflower-like parasite, which the botanist, Hartz, after a great deal of study, named the actinomycetes. Since then we have the name actinomycosis. Since that time numerous observations have been made and we find Nocard recognizes this disease for the first time in 1884. We are told that the same alterations are met with in other tissues of the body. Since Nocard's investigations numerous observations have been made in the study of actinomycetes on the various animals affected. Actinomycetes belong to the vegetable king-

dom and are sometimes known as the ray fungus. It is common on all grasses, but seems to have a preference for the barley straw. On microscopical examination we find they present themselves in yellowish masses, club-like in shape, and seem to form in groups and forming almost a perfect rosette, the splindex or tail interlocking with one another. In certain tumors these enlargements are absent; the actinomyces are here represented by a mass of ramified mycelium. These fungi often undergo calcification. The actinomyces are colored by the methods of Cram and of Weigart. The cultures are obtained in the presence and in the absence of air. Actinomyces can be developed in different mediums. Glycerine, serum, and also on potato culture. They develop in rounded colonies in pale white masses which afterward become yellowish or reddish. Inoculation transmits with difficulty the infection to the calf, rabbit and guinea-pig. Temperature favorable for the development of the culture is between 32 and 37 centimetres. Cultures killed in 10 minutes at zero.

How does infection take place? The actinomyces may invade the animal economy in various ways, but principally through inoculation coming in contact with wounds in the mouth, diseased teeth, etc. Infection may also take place through the respiratory tract and through wounds of the skin. Generalized actinomycosis may take place through the circulation. Adult bovines are the animals particularly affected, although the disease attacks the horse, pig, sheep and man. The affection is very rare in the horse and sheep. We also find it in the deer. The disease has been for a long time known in Europe, under different names for the regions affected, but with the same clinical study; for instance, in England we find it under the name of "woody tongue," where the tongue is affected, and "lumpy jaw" where the head and neck are affected. We also find in Europe and this country an epizootic cancer of the tongue similar to actinomycosis. The numerous works written on actinomycosis show that the disease can be reproduced in the old and new continent with a very irregular development of the different localizations, such as the jaw, tongue, pharynx, etc., but I must say a preponderance of statistics show that the maxillary bones of the head of the ox are the places principally affected and observed. From my personal observations I am inclined to believe that localizations of the lungs and viscera are almost exceptional, although it has been currently reported by several authors.

Quoting from Quill's translation, I notice that of 105 cases the maxillary bones were affected in 51 per cent., the tongue 29 per cent., the larynx and trachea 6 per cent. In France and Germany the maxillæ bones were the most observed. In Italy all the clinical forms are met with. In the county of Norfolk, England, 8 per cent. of the cattle affected localizations were on the jaws and tongue (Cruikshank). In Russia the disease abounds in all centres and in certain regions. In this country actinomycosis abounds to a high degree. Hundreds of cattle are condemned yearly in the different markets; 3 per cent. of the cattle shipped from Canada to England show the lesions.

From the foregoing the question arises how are we to study the different anatomical alterations?

(1) In Bovines. Actinomycosis of the jaws. The localizations on the jaws correspond to tumors; this is the most commonly observed. The disease appears as an inflammatory swelling which first begins somewhere along the lower or upper jaw or on the side of the face. It is often accompanied by a sensibility of the region and difficulty in mastication. It grows slowly and takes quite a long time before it reaches any size. Abscesses which open to the exterior emit a creamy, thick, doughy-like pus mixed with small yellowish grains. Put a probe into the orifice and we will discern a regular fistulous tract, separated by soft tissues. One peculiar aspect of this disease is the fact that the pus has no odor and will come away in strings. The teeth become loose, mastication is slow and one-sided; these fistulous openings are surrounded by black granulations, sometimes attaining the size of a coconut; the animal becomes emaciated; grave functional troubles arise, and unless killed, will succumb.

(2) Actinomycosis of the tongue. First symptoms consist of the difficulty of the animal in prehension, mastication is slow and incomplete, the tongue cannot be extended from the mouth, it is tumefied and painful, and an abundant salivation. At this stage we find the tongue hard, rigid and voluminous (here we get the name "woody tongue"), and showing all over little knots of a yellowish color from the size of a pea to a goose egg, embedded in the mucous membrane. Here we observe the appetite is failing, the animal becomes emaciated, the disease is rapid and at the expiration of a few weeks the animal succumbs to inanition, if not sacrificed.

(3) Actinomycosis of the pharynx. The disease in this region is discovered by direct exploration of the mouth. These

tumors when found are fibrous in consistence and are from the size of a pea to a nut. These tumors generally entail a difficulty of deglutition and respiration, and are sometimes accompanied by a cough. We often find on exploration tumors of the adjacent glands; owing to the difficulty of swallowing and painful respiration the animal emaciates rapidly and ought to be killed.

(4) Actinomycosis of the neck. Symptoms vary according to the seat of the regions involved. Sometimes we find the lesions are seated in the superior part of the shoulder or under the skin, the walls of the pharynx, œsophagus, glands, etc. In all cases there exists a diffuse tumefaction which little by little becomes hard, painful knots which finally discharge a thick, creamy, yellowish looking pus rich in actinomyces; if not relieved the cavity cicatrizes slowly and with great difficulty, the suppuration penetrates more deeply, fistulous tracts are formed, connecting different regions, the skin thickens to three times its natural size, surrounded by soft tissue which suppurates and discharges pus rich in actinomycotic grains. Outside of the lesions in the jaws, tongue, pharynx, we may find actinomycosis in any of the glands or other tissues of the body. On the lips actinomycosis may be confounded with aphthous in calves. The tumors appear under the mucous membrane from the size of a pea to that of a nut. They consist of a caseous purulent centre with fluctuating points and on squeezing will be found to contain actinomycotic grains.

In the respiratory passages we find the tumors infest the walls of the trachea, which cause trouble of respiration varying of course to the size and seat of the tumors.

Actinomycosis of the lungs. Although the localizations have been currently reported in Europe, I believe they are exceptional in this country, and from my own personal observation and from numerous inquiries I have only seen one case, and it presented one large tumor in the left lung, which when cut open emitted a characteristic pus of a yellowish color, sticky and of a doughy consistency, rich in actinomycotic grains. From this tumor little fistulous tracts were observed all through the lung substance and at the end of each tract small tumors were found showing the same characteristics.

Mediastinum glands were also found to be affected, as well as some of the other glands of the body. A thorough examination of the skin and head of this carcass was made, but failed to find any external lesions. Sometimes the evolution resembles

all the characteristics of tuberculosis, symptoms are identical and can be recognized by the microscope only.

Actinomycosis has been found in the mammary glands. Its evolutions also resemble tuberculosis. Outside of its localizations on the maxillary bones it has been observed in the vertebræ and sternum. Here it invades the cancellated structure and by reproducing and developing causes the bony tissue to dilate and destroy, or the cancellated tissue may be absorbed. The growth is of a dense fibrous consistence and as the cause progresses a spongy appearance of the bone appears, which shows centres of actinomycotic grains. Mystrom in 1895 mentions a case of enzootic actinomycosis developed in the pharyngeal region amongst young bovines maintained in the same pasture. Generalized actinomycosis, although being very rare, still is possible. When the glands contiguous to the actinomycotic lesions become charged with the disease then it is possible we may find a contamination of the whole system. As the glands become invaded with the actinomyces a spongy appearance is observed. In course of time the gland tissue is destroyed and the actinomyces become liberated in the circulation, and unless destroyed by nature's elements, and should a fruitful place of development be found, characteristic lesions may be seen. I am doubtful whether actinomycosis can be developed through the intestinal tract, as I believe the gastric juice of the stomach kills the germ or at least destroys their virulence or potency. My attention was called to a large umbilical tumor on a steer at one of the abattoirs. On tumor being removed and dissected microscopical examination showed all the characteristic lesions of actinomycosis. No other lesions were seen.

Swine.—This disease has been observed in the larynx, tongue and mammary glands. These tumors are hard and painful and afterward unite in a large mass, sometimes discharging a creamy, thick pus and on examination will be found to contain actinomyces. They often become very large. Exceptional localizations have been found in the lungs. Knolle reports a case of generalized actinomycosis, the parasites being found in the tongue, serous membranes, liver and vertebræ.

Sheep.—Actinomycosis of the sheep is rare.

Horse.—Actinomycosis has been found in the horse in nearly all centres, but it attacks as in bovines the bones by preference. In the tumors of the jaws we find a delimited mass creating an abscess and persistent fistulous tracts, with a painful tumefaction of the parts involved. In actinomycosis of

the tongue, the same alterations take place as in the ox. In actinomycosis of the neck the localizations present themselves as in the ox.

Right here I would call your attention to the peculiar similarity between this disease and fistulous withers of the horse. Do we not find the same characteristics in the two diseases? I say emphatically we do, and permit me to suggest a thought that when we find persistent and troublesome fistulous withers, think of actinomycotic lesions and medicate accordingly. In some cases of schirrus cord the presence of actinomyces have been found.

Treatment.—When this disease was first discovered treatment was thought to be of no avail, but in 1885 Rasmussen observed that in man the iodide of potassium treatment clearly demonstrated a recovery. We are indebted to Nocard, for in 1892 he communicated his researches and demonstrated the marvellous effects of the iodide treatment on woody tongue. In this country an official commission was charged to investigate the same subject. Out of a total of 185 animals affected in the jaws and parotid regions 131 or 71 per cent. recovered. 53 animals affected in a less degree completely recovered.

After Treatment.—The treatment is administered by the digestive tract in doses of from 2 to 4 drams daily. It should be continued for about 12 or 15 days and then stopped for a short interval, when if the lesions still persist medication should be again commenced. Iodism is little to be feared. The lesions of the tongue are more easily cured than the osseous lesions. Of course when the lesions withstand all internal remedies then surgical interference is necessary, combined with the internal treatment. Tincture of iodine externally is beneficial in some cases. In the prophylaxis of actinomycosis we ought to isolate as far as possible the diseased animals from the well ones until recovery is possible. We ought to cover the wounds with some kind of covering to prevent the pus from falling on the grass or straw, and when cleansing wounds to burn or sterilize as far as is possible all that have come in contact with the wound. Statistics do not show that the disease has been transmitted from animal to man, and although it is improbable it is not impossible. On the other hand, we have precise observations that the disease in man has been produced by vegetables, grasses, etc., and it follows as in animals the same procedure. Contagion from animals to man is then doubtful (unless through inoculation or vaccination),

but we ought to use all necessary hygienic precautions so that no infectious matter may be carried. Washing the hands in water after exposure to actinomycotic suppurations will be enough to eliminate all dangers of infection. As contagion from animals to man is then doubtful we ought to give the human family the benefit of the doubt and reject for consumption all meats suffering with generalized actinomycosis, or where we find a fistulous tract opening into the mouth, and where the glands contiguous to the wound are diseased.

DISCUSSION.

Dr. Stewart: Owing to the absence of Dr. Bennett, who was announced to open the discussion of this paper, I will undertake to do so. And, first, I wish to compliment the essayist upon his careful preparation of the paper, and particularly upon the careful and systematic arrangement of the history, pathology and symptomatology of the disease. While the paper does not deal very fully with the problem of the treatment of the malady under consideration, yet it alludes to both medical and surgical interference. In illustration of the value of this side of the problem, I wish to relate a statement made to me by a practitioner living some thirty miles east of Omaha, while I was in attendance at a meeting of the Iowa and Nebraska associations in Omaha last week. He said that the treatment of actinomycosis was a profitable phase of his business; that he had been called to treat some ten or eleven cases, in one bunch, on the day previous to the meeting, and that he received five dollars for each case, the price current in that section; that he had received several such calls recently, and you can imagine that that sort of business would make him feel in good humor. Hence I feel that the practical side of this subject is of special importance to the practitioner in the country. The value of undertaking treatment will depend upon one's point of view. If the animals can be rendered marketable, the practitioner will hold that it is worth while, as also will his client. The meat inspector will find that while the external lesions have been destroyed or removed the internal lesions are still present, and would hold that treatment was of no great value. Relative to the employment of iodine internally administered, I wish to report some cases that we treated in the stock-yards at Omaha, and slaughtered to determine the results. In the cases where the soft parts alone were involved, the actinomycotic growths disappeared, also the tumefactions produced by them, and where the bony tissues were invaded the size of the tumors was

very greatly lessened, probably owing to the resorption of the fibrous tissue formations which are always found surrounding such bony growths. In one case in which there was a characteristic actinomycotic growth in the maxillary sinus it was noted that while the new formation was not removed, yet it seemed to be shrivelled and changed in its appearance, giving the impression that the actinomyces had been destroyed.

Dr. Verscheldon: I am very much interested in this question of the treatment of actinomycosis with iodide of potassium, and particularly am I anxious to know whether such cases will pass the inspector; whether the inspector can tell as to whether or not a case has been treated with iodide of potassium, and that in case he knows that it has been so treated if he will pass it.

Dr. Stewart: In answer to Dr. Verscheldon's question, I would say that it very much depends on the inspector, and whether he be a federal inspector or a municipal inspector; also somewhat upon his individual ideas.

Dr. Verscheldon: The farmer in my vicinity always puts the question: Can they be so treated that they will pass the government inspection? If they can be cured so that they will pass the government inspection, then it will pay to have them treated, and I am particularly anxious to know what is done with these cases in Kansas City.

Dr. Milnes: It has fallen to my lot to pass upon a large number of these cases in the Kansas City yards, and as we are provided with suitable chutes for confining animals, the examination is quite critical. In cases where the lesions in soft parts have been properly and successfully treated, and only small thickenings remain to show that disease has sometime been present, the cases are passed; but in other cases they are held for special post-mortem examination. Experience has shown, however, that in many cases where the external lesions are properly cured, there are found, upon post-mortem examination, lesions of the internal organs. Farmers often follow these cases from the scales where they have been detected by the government officials, to the special government retaining pen to ascertain, and if possible influence, the final decision in their favor. In many cases the lesions are confined to the external soft parts, and it would seem proper and advisable for practitioners to undertake their treatment, and profitable to the farmer to have them treated, and if I were in practice I would advise their treatment.

Dr. Moore : In treatment of these cases with iodide of potassium internally, expense is quite a factor, cases usually requiring a pound or more of the drug, which is quite expensive. So large a quantity need not be employed if during treatment the animal be not given foods containing large quantities of starch. Four ounces of the drug will suffice if the diet is restricted in the manner indicated.

Dr. Verscheldon : I understood the essayist to hold that there was a great similarity between actinomycosis and fistula of the withers, and I wish to inquire if he ever treated fistula of the withers with iodide of potassium, and what sort of success he had.

Dr. Wright : My statement was not based upon experience, but entirely upon theory. I do not know that the organism producing fistula of the withers has been determined; it had seemed to me that the disease processes were quite similar as to formation of fistulæ, the character of the pus, slow healing, etc.

Dr. Verscheldon : I was prompted to ask the question because of a case occurring in my practice. The case was suffering from what I concluded was crotalism, and was placed under the iodide treatment. As the animal also was afflicted with fistula of the withers, I noted that this disease seemed to be favorably influenced by the iodine.

Dr. Ernst : In the vicinity of Leavenworth, Fleming's Lump Jaw Cure has become quite popular with the farmers, as they seem to employ it quite successfully. I would like to know if the inspectors can tell whether cases have been treated with this remedy or not, and whether cases treated with this agent pass the inspection.

Dr. Milnes : It is not possible to tell, when the animals are marketed, whether they have been treated by the Fleming Lump Jaw remedy or some other. Many cases present the appearance of having been treated by some acid, which leaves a large cicatrix, and when applied to the diseased bone there remains a large ragged ulcer. When injected to the bottom of abscesses in the soft parts, destruction of the secreting membrane takes place, and perfect healing follows.

(*To be continued.*)

CHICAGO VETERINARY SOCIETY.

The fourth annual meeting of the society was called to order on Thursday evening, October 19, by President Robertson. So intensely interesting were the subjects presented that

the twenty members present could not resolve to adjourn until within a few minutes of midnight.

President Robertson called the attention of the members to the meeting of the Illinois State Veterinary Medical Association to be held in Chicago during November, and hoped that the Entertainment Committee of this society would not prove lacking in providing a programme that would be of interest to all, and presuming that in all probability a joint meeting of the two societies would be arranged for, at which a clinic would be one of the main features. He invited every one who had an interesting case at the time to present it. At the close of his remarks he opined that the passing of the bicycle as a competitor of the horse was an assured fact, and at present he could conceive of nothing to alarm him at the slow progress of the automobile.

Dr. Wm. C. Siegmund's application for membership received the favorable indorsement of the Board of Censors, and his election as a member of the society followed.

The election of officers for the ensuing year was now in order and resulted in the selection of the following by unanimous vote :

President—Dr. Joseph Hughes.

First Vice-President—Dr. L. A. Merrilat.

Second Vice-President—Dr. A. C. Worms.

Third Vice-President—Dr. H. W. Hawley.

Secretary—Dr. Jos. B. Clancy.

Treasurer—Dr. R. G. Walker.

Dr. Robertson in retiring from the chair presented the new President, and recalled the efforts of the past few years to have him consent to his election to the office. In the past his excuse has been sustained by the society. Now it is overruled, and we may congratulate ourselves at his acceptance.

President Hughes rehearsed his reasons for declining in the past, it being his opinion that some one not so directly connected with either of the veterinary colleges should fill the office. He therefore came to the meeting unprepared for the honor bestowed.

The next business of the evening was the appointment of committees, and the following were named :

Board of Censors.—Dr. E. L. Quitman, Dr. Allen, Dr. Dubia.

Entertainment Committee.—Dr. Robertson, Dr. Worms, Dr. E. L. Quitman.

Legislative Committee.—Dr. Walker, Dr. Hawley, Dr. Merillat, Dr. Ryan, Dr. Allen.

Literary and Publication Committee.—Dr. A. H. Baker, Dr. A. M. Casper, Dr. L. Campbell and the Secretary, member *ex-officio*.

Dr. H. W. Hawley reported a case of rupture of the tendon of the flexor metatarsi and urged all who were interested in the case to call and examine it. In the discussion that followed Dr. Jos. Hughes described the method of operating to effect a cure in these cases.

Dr. E. L. Quitman reported a similar case, following which many other reports were discussed, and many of those were willing to continue the discussion, when a motion to adjourn prevailed at 11.55 P. M.

JOS. B. CLANCY, *Secretary*.

The monthly meeting of the society was convened at Hotel Brevoort on Thursday evening, November 9th.

President Hughes presided, and the following members were present: Doctors Campbell, Casper, Clancy, Dubia, Donovan, Howe, Hughes, Hawley, Merillat, Nelson, Pierce, Pistor, P. Quitman, E. L. Quitman, Robertson, Siegmund, Sugroesser, Walker, Worms, and Dr. Morris Wooden, whose application for membership was favorably indorsed by the Board of Censors, was elected a member of the society.

A motion presented by Mr. Robertson prevailed, instructing the President to appoint a committee of three whose duty it shall be to report at the next meeting some place available for a permanent meeting place for the society.

Dr. E. L. Quitman now prefaced his paper with an apology for not going into the subject more thoroughly; pressure of business had prevented him from finishing it as he wished. The paper was well received and provoked a lengthy and spirited discussion, in which Dr. A. H. Baker thought "it was open to a little friendly criticism," and he proceeded to express his surprise at some of the statements it contained. It was resolved that the questions brought out in the paper be laid upon the table for further consideration, and the terms "serviceably sound," "wind and work," etc., in use at the auction ring of the Union Stock Yards, are as indefinite as ever. Brush firing, Dr. Robertson confessed, was something new to him, and he wondered if there were others. Yes, there were others who confessed their utter and dense ignorance. Dr. Wm. C. Siegmund explained the method and its effect, and many contended that

the same results could be accomplished with less bother by the use of blisters.

JOS. B. CLANCY, *Secretary*.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was called to order at eight o'clock P. M., in the lecture room of the New York American Veterinary College, 141 W. 54th St., November 1, 1899, with President Robertson in the chair. After roll-call, the minutes of the previous meeting were read and approved.

The committees having no reports to offer, reading of papers was next in order.

Dr. Wilfred Lellman read a paper entitled "Science and Practice," which was freely discussed and much appreciated by the members present. Dr. Bell next read a paper which embraced a report of "Two Cases of Equine Rabies," met in his practice. This paper proved to be of extreme interest, and was discussed freely, both from practical and scientific standpoints.

Dr. O'Shea moved for a vote of thanks to the essayists, which was seconded and carried.

Under the head of "New Business," a change in the By-Laws was voted upon as follows: Moved by Dr. Bell and seconded by Dr. O'Shea, that Art. XI of the By-Laws be changed so as to read; "The initiation fee shall be five dollars, and the annual dues shall be two dollars." The usual thirty days' notice having been given, before an open meeting, the same was voted upon, and carried, by a majority vote.

Moved and seconded that the meeting adjourn.

ROBERT W. ELLIS, D. V. S., *Secretary*.

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

President Roscoe R. Bell has made the following appointment of Committees for the ensuing year:

Executive Committee.—Roscoe R. Bell, Chairman; Wm. Henry Kelly, W. L. Baker, W. L. Williams, C. D. Morris.

Legislative Committee.—Wm. Henry Kelly, Chairman; James Law, Arthur O'Shea, C. D. Morris, Roscoe R. Bell.

Committee on By-Laws.—W. L. Baker, Chairman; W. L. Williams, C. D. Morris.

Committee of Arrangements.—W. L. Williams, Chairman; James Law, J. A. Genung, Chas. Cowie, C. D. Morris.

NEWS AND ITEMS.

DR. H. D. GILL has been winning laurels with his fast trotters and pacers on the Speedway and on the track.

"I HAVE BEEN READING YOUR VALUABLE REVIEW and appreciate it very much."—*G. R. Stewart, V. S., Calumet, Mich.*

THE MCKILLIP VETERINARY COLLEGE, Chicago, Ill., has sixty-two students in attendance this year, a notable increase over former years.

PROF. H. D. HANSON'S book, "Prescription Writing," is nearly ready for distribution, and veterinary practitioners will find it a very helpful companion.

LITTLE is heard of the Veterinary Service Association in the vicinity of New York, and there is not much danger of its becoming a competitor for practice worth having.

A PROPOSED AMENDMENT to the by-laws of the American Veterinary Medical Association provides for the election of five instead of three Vice-Presidents.

PROF. E. A. A. GRANGE, of Michigan, has been in New York for some time lecturing before the public schools in the interests of the American Society for the Prevention of Cruelty to Animals.

A CURIOUS DELIVERY.—The *Giornale della Reale Societa Veterinaria* reports the case of a mare which was delivered of twins—one a mule, the other a filly; the mother was white, the mule black, the filly bay.—(A. L.)

Dr. T. E. WHITE, State Veterinarian of Missouri, is a candidate for reappointment, and it is hoped that he will succeed himself, since he has been a conservative, dignified officer, and a credit to his profession.

THE RUSSIAN GOVERNMENT is buying up many of America's best breeding horses with the object of improving its own. With the English Army as a heavy purchaser of remounts and our own government sending ship-loads to the Philippines the surplus stock of the country is being rapidly reduced.

THE SEASON for rubber horse shoe pads is at hand, and the manufacturers are busy. The Air-Cushion Pad, advertised elsewhere, seems destined to take a leading position among them. From a veterinary standpoint they are correct, and should receive the endorsement of veterinarians.

THE NEW YORK COUNTY V. M. ASSOCIATION has reduced the annual dues from \$5 to \$2, and changed its place of meeting from the Academy of Medicine to the lecture-room of the

New York-American Veterinary College, 141 West 54th Street. This is a popular move, and it is hoped that many new members will be secured, especially among the younger members of the profession of the Metropolitan district.

OPERATIVE ANTISEPSIS.—It is now recommended that tincture of soap be used to disinfect both the site of operation and the operator's hands, for the reason that the tincture penetrates the several layers of the epidermis, rendering them aseptic for some time, and the evaporating of the alcohol makes drying with cloths unnecessary. The part to be operated upon should be thoroughly scrubbed for from three to five minutes with the tincture.

ARMY VETERINARIANS IN BELGIUM.—The organization of veterinarians in the armies of Europe may be interesting to Americans at this time, since they may soon be called upon to undergo such an organization in the army of the United States. From the *Repertoire* of Mr. Laquerrière we extract the following: The principal dispositions of a recent royal order are: 1 chief veterinarian, with rank of lieutenant-colonel; 4 principal veterinarians, with rank of major. In the regiments veterinarians are divided into: First class, with rank of first captain; second class, with rank of second captain; third class, with rank of lieutenant; adjunct veterinarians, with rank of second lieutenant.—(A. L.)

MR. ALEX. EGER, of 34 East Van Buren Street, Chicago, Ill., publisher and dealer in veterinary books, drugs and instruments, has just issued "A Guide to Practical Meat Inspection," by F. Fischöeder, translated by A. T. Peters, D. V. M., University of Nebraska, and will have ready within the next fortnight "Outline of the Antiseptic Treatment of Wounds for Veterinarians," by Dr. H. Frick, translated by himself. He will make a tour of the principal cities of Canada and the United States in the interests of the books, especially those cities the seat of veterinary colleges. Mr. Eger is the authorized agent of the REVIEW, and will receive subscriptions to this journal at the same time. His enterprise is deserving of success, and we trust the profession will give him the encouragement he deserves.

DIED OF ANTHRAX.—Philip Cooney, a longshoreman, 26 years old, who lived at 24 Atlantic Avenue, visited the hospital on Monday. He was almost in a state of collapse. He informed Dr. Mildenberg, the house surgeon, that he had been at work at one of the big warehouses on the river front in Brooklyn unloading hay and grain from a vessel that had come from

a Southern port. On Saturday he noticed a small swelling on the left side of his neck immediately under the angle of the jaw. He pricked it with a pin. Soon his neck and the glands situated there began to swell. Dr. Mildenberg and the other surgeons diagnosed the case as one of anthrax or malignant pustule. Soon his body was much swollen from the neck to the waist. His temperature was four degrees below normal and at times it was impossible to perceive his pulse. He continued to get worse, and on Tuesday night he died. He was in great pain all the time he was in the hospital. The case was reported to Coroner Burger and Dr. Hartung made an autopsy. By means of microscopical tests it was proved without doubt that death was due to anthrax. Dr. Mildenberg, who watched the case carefully, said the anthrax bacillus must have been in the hides which Cooney was handling. There was a scratch on his neck and he must have accidentally rubbed his hand on his neck. The germ thus found access to the blood. He said that other persons might handle the hides for years and escape the anthrax bacillus, just the same as hundreds of people escape the bacillus of consumption. The result of anthrax poisoning, he said, was that all the tissues and the organs of the body became diseased. —(*New York Sun*, Nov. 17.)

ALEX. EGER, 34 East Van Buren St., Chicago, Ill.,

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AMERICAN VETERINARY REVIEW.

JANUARY, 1900.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

DETROIT THE CONVENTION CITY OF 1900.

In the December REVIEW the prediction was made that either Detroit, Milwaukee, or Minneapolis would receive the decision of the Executive Committee of the American Veterinary Medical Association as the place for holding the next meeting of that body, and we are enabled to announce that the choice has fallen to the first-named city. Located on the western bank of Lake Erie, within easy reach of the great mass of the members of the Association, it is an ideal point for a national gathering, It is not so central as some cities situated further to the south, but it will meet with the approval of the majority of the members. The membership is greatest in the East and throughout the Central West, extending as far towards the Pacific Slope as Arizona and Washington, while the meeting of 1898 brought in a great number from Nebraska, Iowa, and other adjacent States. Not only is the selection of Detroit a happy decision geographically, but it is a just reward for patient waiting, since year after year her veterinarians have placed her name in nomination and urged her many claims. There are no more earnest men anywhere than those of that city; they need the influence and the prestige of so auspicious an event as the assembling within her hospitable walls of the National Association, and, while the REVIEW would be pleased to see the claims of the other candidates honored, it feels that the decision of the Executive Committee has been a wise one at this time.

The *Journal* for November deplores the fact that in recent years too much of the time of the meetings have been given up to social pleasures, and that night sessions have not been the rule. We can scarcely understand how our contemporary can draw such conclusions from the facts, since the recent meetings have, in our judgment, been models of distributed profit and pleasure. At the late New York meeting the Committee of Arrangements asked only for the last afternoon of the session, and did not even take the members from the hall until one o'clock. The impression that many hours were passed outside of the hall probably arises from the recent innovations of surgical clinics and pathological exhibits, which have decreased the number of hours devoted to the reading of papers so perceptibly as to greatly embarrass that portion of the programme. It is without question a serious mistake to curtail the time allotted to this branch of the programme to the extent that it reached at the last meeting, for the papers were of a high order, and if sufficient time had been given for their proper discussion, a valuable addition to the literature of our profession would have been secured. It is disappointing, embarrassing, and disheartening for an essayist to devote hours of careful study and research to a subject, to travel many miles, taking time from a practice which can illy spare him, to read his thesis, hoping thereby to contribute his quota and to receive in return the judgment of his fellow veterinarians from all parts of the country, and then to find that the time of the convention has been so occupied with other events that his number cannot be reached, and must be read by title only and referred to the Publication Committee; or if he is so well up on the programme that he is called upon to read his paper, he is told that only twenty minutes can be spared for its reading, and when he has cut it beyond recognition in order to save the time limit, discussion is postponed that some other gentleman may have an opportunity to present a subject of great importance. Many such instances occurred at the New York meeting. One in particular impressed us. Prof. Schwarzkopf had been to great trouble and some expense to collect sta-

tistics upon Schmidt's treatment for parturient paresis, at the earnest solicitation of Secretary Stewart and the REVIEW, who hoped that with such a representative gathering of men from all parts of the Union, a true and comprehensive idea of the value of the much-discussed method might be arrived at. All that was secured was the publication in the "Proceedings" of the results of the doctor's correspondence with a number of veterinarians who had been employing it. The doctor is too faithful an associationist not to accept his lot in good part and to see that his name is placed higher on the programme next time; but there are some men of a different temperament who could become sullen and refuse to make any further attempt of a like kind.

But, the question again arises: Can the Association afford to abandon the surgical clinics? Many believe that they are of more real benefit than the didactic lectures, for, while the latter can be contributed to the current literature of the profession, no amount of descriptive writing can supplant the ocular demonstration of a surgical procedure; that they attract the members to the meetings, and are of certain benefit to those who are engaged in every-day practice; that new and delicate operations by men of reputation are the acme of associational value, and should not be omitted for any other part of the programme. We confess that we appreciate these clinics thoroughly, and should be sorry to see them dropped at our meetings.

And the pathological exhibit? Having the grandest opportunity to acquire such a wonderful display of diseased organs and tissues through the inspectors of the Bureau of Animal Industry from all the great central abattoirs of the West, who will say that the Association cannot spare the few hours to witness such a collection, which has taken the collectors months to gather and carefully preserve?

No, nothing can be omitted; more time must be gained; and the only solution of the problem consists in night sessions for the reading and discussion of papers, whether they be upon subjects of State medicine or routine practice. It is a question

which should be fully discussed prior to the convention, and the REVIEW tenders its pages cheerfully for such a purpose.

NOW AID THE ARMY BILL.

We lay before our readers this month a copy of a letter sent forth by the Committee on Army Legislation of the American Veterinary Medical Association to all veterinarians known to them, asking their aid in furthering the bill to be presented at the present session of Congress to secure a better status for the veterinarian in the United States Army. In order that the subject may be made very plain to those of our readers who have not given the subject much thought, we also reprint the circular of information prepared by the committee. There will scarcely be a recipient of this appeal who will not heartily approve of it, and who will not honestly decide to accede to the request of the committee for moral support through his influence with the Congressman of his district and the Senators from his State. But the trouble is he does not act; he delays, postpones, until it is too late. The time to see your representative or Senators is at once,—as soon as you read this warning. If they are absent, sit down and write them as strong an appeal as you can. If you have friends of influence with your congressional representatives, have them also write. Whatever you do, do it now; and you will some day be proud to say that you were instrumental in securing the Veterinary Corps of the United States Army.

“THE AUTOMOBILE GAZETTE” (sometimes called the New York *Herald*) has apparently added to its various attachés “a runaway editor,” with a staff of very energetic reporters, for since it began its tirade against the horse (which became necessary to boom the stock of the automobile trust) no animal of the *genus equus* has kicked over a trace in the city of New York without having the incident exaggerated in its columns. Almost every morning it incites its readers to abandon the horse as a dangerous animal by giving a column or more to

some simple little affair that a few years ago would not have been deemed worthy of a head-line, and usually the distorted facts are followed by a namby-pamby boom of a projected automobile invasion, which, as usual, promises to cause the early extinction of the horse. Every other newspaper gave the telegraphic news of the placing of steam launches on the canals of Venice, superseding the gondoliers which have plied their plodding way about the ancient city for so many years. But the *Herald* could not resist the opportunity of showing its contempt for the horse, and published an illustration of him giving sympathy to the Austrian boatman. And yet when we turn to the advertising columns we find the announcement of a number of horse-dealers who, like the historic canine, turn to lick the hand that smote them. But they are fewer than formerly, and mostly confined to fake "administrators' sales," and "widows whose husbands have recently died," or "families about to go abroad."

ORIGINAL ARTICLES.

OBSERVATIONS CONCERNING THE SIGNIFICANCE OF STREPTOCOCCI IN COMPARATIVE PATHOLOGY.*

BY VERANUS A. MOORE, B. S., M. D.,

Professor of Comparative Pathology and Bacteriology, New York State Veterinary College, Cornell University, Ithaca, N. Y.

In a former communication presented to this society, I discussed briefly the topic of wound infection and pointed out the fact that streptococci were frequently present in the common suppurating wounds and other lesions found in various diseases of the domesticated animals. Attention was also called to the results of certain investigations already recorded which point to the probable etiological significance of these organisms in a few epizoötic diseases.

*A summary of this paper was presented at the annual meeting of the New York State Veterinary Medical Society at New York, September 8, 1899.

During the past year, bacteriologic examinations have, as heretofore, been made of the various morbid tissues which have come to our laboratory either from the clinics of this college or from different veterinarians in the State. As would be expected, there has been considerable variety of subject matter, and, in many instances, the specimens have been quite limited in number. However, streptococci have been found in such numbers, and, in cases of certain definite disorders, to be so constantly present that their possible etiological significance renders them worthy of more than a passing notice. Furthermore, the introduction of antistreptococcic serum for the treatment of the so-called streptococci diseases of animals calls for a more intimate acquaintance on the part of the practicing veterinarian with the present knowledge of the relation of streptococci to the maladies with the lesions of which they are so often associated.

It has long been known that streptococci are frequently present either alone or associated with other bacteria in lesions of various kinds in both man and the lower animals. In human pathology the extent of their activities has been more fully determined. In a few instances, they have been credited with disease-producing power. In certain other diseases they have been so conspicuous that distinguished pathologists have for a time looked upon them as the causal agents, but subsequently their presence has been proven to be of secondary importance only. However, their power to produce sepsis, to excite inflammation and to cause suppuration seems to be so great that they are classed among the important parasitic bacteria. In comparative pathology, the range of their disease-producing power is not so well defined. The part they take in causing animal diseases, both of a local and of a more general nature, is not satisfactorily determined even in case of affections where their causal relation is strongly suspected. In the absence of positive knowledge concerning the specific cause of those affections, it is natural to attach considerable importance to the species of bacteria commonly associated with their lesions. This, however, is not proof. The technical difficulties involved in the incrimination of any

of these commonly encountered organisms are so great that a method either of exclusion or of confirmation must be relied upon in arriving at more definite conclusions concerning the etiological activities of these bacteria in many of the common disorders of the lower animals.

The study of the morphology and classification of bacteria has progressed so rapidly during the past few years that one finds much confusion to exist concerning not only streptococci infection, but streptococci themselves. It is important that such confusion should be avoided and that streptococci should not be mistaken for other genera of bacteria and *vice versa*.

The genus *Streptococcus* is based, according to Migula,* on its method of reproduction or division, *i.e.*, streptococci are spherical bacteria which divide in one plane. The importance of this generic distinction cannot be stated until the number of micrococci which appear in short chains is more accurately recorded. The segments do not separate but are held together in short or longer chains, although the divisions seem to be complete. Just how the segments are held together is not fully determined. According to older and more commonly encountered classifications a streptococcus is simply a number of micrococci (spherical bacteria) united in the form of a chain. In some of the supposedly different species of streptococci the segments are often oblong and vary in size. Frequently, however, the segments vary in both size and form in the same chain. It is not my purpose in this paper to discuss the morphology of streptococci further than to call attention to certain of these different forms which are not infrequently encountered, and which it would seem should be taken into account, in their differentiation. To this end, I have pointed out in plate I. a number of these structural differences.

The more usually observed cultural characters and bio-chemic properties of streptococci are quite similar, although it is difficult to obtain two cultures that will exactly agree in all of their manifestations when grown on a large number of

* System der Bakterien.

media.* Their disease-producing powers; however, vary within wide limits. While these variations in physiological properties and pathogenesis are true for different cultures (species?), it has been found that there is a possibility of such variation in the subcultures of the same species. As with certain other bacteria their virulence is the first to suffer change. In differentiating species, therefore, the fact must not be overlooked, that the existing characters and properties possessed by the streptococcus in hand may have been more or less influenced by its conditions of life. When, for example, two streptococci appear to be identical under the majority of tests, a slight deviation in a single property cannot be considered of too great a differential value especially if this particular manifestation is among those most subject to change. A fundamental difficulty in differentiating species among streptococci seems to be a lack of information concerning the possible variations brought about by different environments. The further difficulty of identifying any of the very large number of species which have been assigned specific means is due to the brevity of their description and the failure of the author to mention any character or property, or combination of the same, which would distinguish it from others. However, such deficiencies cannot well be avoided in the time of rapid accumulation of observation and the evolution of methods.

At first it was thought to be sufficient to name a streptococcus from the disease, the lesion, or the animal in which it was found. Thus we have *Streptococcus pyogenes*, *S. erysipelatos*, *S. diphtheriæ*, *S. equi* and many others. Since the wide distribution of this genus on the normal mucous membranes of animals, in water, and in soil, and the frequency of their appearance in a great variety of lesions have become verified facts their

* The only character or property found to be constant for all cultures of streptococci which I have isolated and studied has been their action on sugars. In every culture thus examined during the last six years the sugars commonly used (grape, cane, and milk) were fermented, producing acids but no gas. The streptococci were rapidly destroyed in the acids produced. I have come to consider their action on sugars valuable in differentiating between streptococci which grow in very short chains and certain micrococci which often appear in this form.

specific determination has become a matter of more serious importance. The present problems seem to rest in the following questions, viz.: (1) Are the streptococci which are encountered in different kinds of lesions such as acute inflammatory processes, abscesses, septicæmia, and the like, different species, and (2) Is a single species of a pathogenic *Streptococcus* capable of producing disease in different species of animals or different kinds of diseases in the same species? Thus, can the same *Streptococcus* produce like inflammatory processes in a cow and in a horse, or can it cause, for instance, strangles in one horse and a simple abscess or induration in another?

A number of distinguished bacteriologists and pathologists have written concerning the similarity and even the identity of certain streptococci which previously were supposed to belong to different species. Thus, Prudden* found that the streptococcus which he isolated from the throats of children suffering from diphtheria could not be differentiated from *S. pyogenes* and *S. erysipelatos*. Welch† placed the streptococci of erysipelas, phlegmonous inflammation, septicæmia, puerperal fever and various forms of angina in one and the same species.

Zschokke‡ supposed the streptococcus which he isolated from cases of strangles was identical with *S. pyogenes* until Schütz showed its specific relation to the disease. Hell could not separate *S. pyogenes* from *S. pyogenes equi*, *S. erysipelatos* and the streptococcus of *Brustseuche*. The list of those who have failed to find distinguishing characters or properties in streptococci thought to be the specific cause of different affections could be lengthened should additional testimony on this point be desired. Although the evidence is strong to support the singleness of species, or at least to reduce the number, a few observers have come to believe that there are distinguishable differences existing between these forms.

*The *American Journal of the Medical Sciences*, XCVII. (1889), p. 229.

†The *American Journal of the Medical Sciences*, CII. (1891), p. 439.

‡*Milit-Vet. Zlschr.* II. S. 97. Ref. Jahresbericht der. Veterinär-medicin, 1889. S. 18.

Klein* maintained that streptococci which appear on superficial examination to be identical can be differentiated by a more thorough study of their properties. Lucet† separates *S. pyogenes* from cattle from *S. pyogenes* from man without, however, mentioning any difference in morphology or properties. In a former study‡ of this genus of bacteria twenty-eight different cultures were isolated and certain of their properties determined. Fifteen of the twenty-eight were isolated from the tissues of animals which were known to have succumbed to specific diseases, such for example as hog cholera, swine plague, Texas fever and glanders. The others were obtained from the organs and tissues of animals which died from causes not definitely determined. A comparison of the morphology and biochemic properties of these twenty-eight streptococci showed that no two of them were exactly alike, and yet many of them were so similar in all of their manifestations that a specific or even varietal distinction seemed unjustifiable. Whether a more extended series of tests would have widened the difference is not known. The evidence accumulated concerning their disease-producing power led to the conclusion that in every instance they were of secondary importance only.

A few investigators have tried to eliminate the confusion concerning species by classifying streptococci according to distinct morphologic characters, and pathogenic properties. Of these classifications the following may be mentioned:

I. *The classification of von Lingelsheim.*§ This author divides all streptococci into two groups, or species; namely:

(a) *Streptococcus brevis*—Which is non-pathogenic.

(b) *Streptococcus longus*—Which is pathogenic.

In this we find a combination of pathogenesis and morphology which the author thought applicable to the entire genus.

* Seventeenth Annual Report of the Local Government Board, supplement containing report of Medical Officer. London, 1887, p. 256.

† Annales de l'Institut Pasteur. Tome VII. (1893), p. 324.

‡ Bulletin No. 3, U. S. Bureau of Animal Industry, Washington, D. C., 1893.

§ Zeitschrift f. Hygiene Bd. X. 1891, S. 331.

He worked very largely, however, with the streptococci from the human mouth and throat.

II. *The classification of Kurth.** Kurth worked largely with the streptococci from cases of scarlatina. His system is practically the same as that of von Lingelsheim, with the exception that he does not include pathogenesis as necessarily belonging to either group. The divisions are as follows:

(a) *Streptococcus rigidi*.—Streptococci growing in short chains, and which impart a uniform turbidity to bouillon.

(b) *Streptococcus flexuosi*.—Streptococci which grow in long interlacing chains which form flocculi in bouillon leaving the liquid clear.

III. *The classification of Pasquale.** Pasquale worked with thirty-three streptococci, including nearly all of the then known species. His work was quite exhaustive, but he had to deal with cultures of various generations. He divides them into four groups, as follows:

(a) Short saprophytic streptococci.

(b) Long non-virulent streptococci.

(c) Long pathogenic streptococci.

(d) Short highly infectious streptococci.

Group (d) pertains largely to bacteria which are no longer recognized as streptococci, for example, the diplococcus (*micrococcus lanceolatus*) of pneumonia. It is now known that streptococci which grow in short chains are often virulent. This is especially true of the pyogenic forms.

The study of streptococci from various sources, more especially from tissues of diseased animals, suggests the desirability of delaying a classification until more definite data are obtained concerning the natural history; not only of these, but also of the species normally present on the mucous membranes of animals, and in nature generally. The specific name is, pathologically, or even biologically speaking, of little moment unless we can attach a certain definite meaning to its description which should

* Arbeiten a. d. Kaiserlichen Gesundheitsamte, Bd. VII., (1891), S. 389.

* Beiträge zur path. Anat. u. zur allgemeinen Pathologie, Bd. XII. (1893), S. 433.

convey information concerning certain morphologic characters and cultural manifestations and the degree of disease-producing power possessed by the organism designated. In the group of twenty-eight streptococci previously studied, I found the pathogenic forms, *i. e.*, those able to produce disease in rabbits, guinea-pigs, or mice, about equally divided between the long and the short chains. Of the twenty-eight, nine possessed a certain amount of virulence for one or more of these animals. In that study no distinctive features were found to mark the streptococci isolated from different species of animals. In this respect no exceptions were found in the more recent studies about to be detailed.

In the following pages I desire to call attention to the suppurating lesions, diseases, and infections in which streptococci have been found, and to indicate the circumstantial evidence bearing on their etiological relation to these affections. A full description of the streptococci isolated will be omitted, attention being called in most cases simply to the more conspicuous character or property of each.

STREPTOCOCCI IN DISEASES OF CATTLE AND SHEEP.

Streptococci have frequently been isolated from the suppurating lesions in cattle and in sheep. Lucet* has reported the results of a bacteriologic examination of fifty-two abscesses in cattle. From nine of these streptococci were obtained in pure culture, and in ten cases they were associated with other bacteria.

In 1898 I published† the results of an investigation of an enzoötic of suppurative cellulitis in the feet and legs of cattle due to streptococci infection. The disease caused much anxiety on the part of the cattle owners who had come to believe that it was "contagious foot rot." Since that time a number of reports of the existence of a similar disease have been received.

* *Loc. cit.*

† AMERICAN VETERINARY REVIEW, June, 1898.

Its apparent importance warrants the introduction of a summary of the observations and results then obtained.

The lesions were, within certain limits, uniform in all of the affected animals. Usually but one foot or leg was attacked, although there were numerous exceptions reported. The first symptom noticed was a swelling, which usually appeared in the lower part of the leg, most often in the pastern. In some animals it was said that the swelling was restricted to a small area, but often it extended up the leg to and even above the knee or the hock joint. There was evidence of pain. As the inflammatory process continued, the subcutaneous tissue became indurated, the skin thick and dry, and eventually it would crack, usually, but not always, below the dew claws, and a thick creamy pus would be discharged. After discharging, the swelling subsided and the normal condition was rapidly restored. The time necessary for the suppurative process and recovery to take place varied in different animals, but as a rule from ten to fifteen days were required. The exceptions were largely in those cases where the inflammatory process extended down to the coronary cushion. In these there was more or less sloughing of the hoof and it was in these cases that the disease appeared in its most serious form. So far as I have learned all of the affected animals eventually recovered. A personal examination was made of five cases, in two herds, which were on adjoining farms. The notes on four of these cases are appended.

Case No. 1. A cow, 7 to 8 years old. The trouble was in the right hind foot. She had recovered from a severe attack in the right fore foot. There was still some swelling in the hind leg and the skin and subcutaneous tissue above the heel were much thickened. There were two cracks below the dew claws, from which, the owner said, there had been a profuse discharge. At this time pus could not be obtained. Several small pieces of the infiltrated tissue were secured. From some of these agar tubes were inoculated at the time and the others were placed in sterile tubes and brought to the laboratory for further examination.

Case No. 2. This was in a cow, about six years old. The left fore leg was just beginning to swell. There was evidence of pain and the skin from the hoof to the knee was sensitive to the touch, and the skin was appreciably reddened. The temperature was normal, but there was indifference to food. This case was treated locally by Dr. Law, with recovery without suppuration.

Case No. 3. (Cases 3 to 5 were in the second herd.) This was in a cow, seven years old. The right hind leg was affected. The disease had already run about three weeks and for several days the animal had been under the care of a veterinarian. The cellulitis had extended up the leg to and above the hock joint and down to and over the coronary cushion. The hoof covering the heel had cracked and part of it had been removed. There was a large subcutaneous abscess above the heel, which was discharging through an opening or crack in the hoof near the middle of the bottom of the foot. It was stated that at first the pus was thick and of a cream color, but at this time it was thin and of a dirty brown tint. By means of pressure a considerable quantity of it was forced out, from which tubes of agar were inoculated and a few cubic centimeters placed in a sterile tube and brought to the laboratory.

Case No. 4. This was in a two-year-old heifer. The left hind foot was attacked. The leg was slightly swollen. There was distinct fluctuation over an area about 3 cm. in diameter, on the front of the foot just above the hoof. The animal seemed to be well otherwise. Temperature normal and appetite good. The hair was clipped, the foot carefully washed and disinfected and the abscess opened. It contained about 5 c.c. of a thick creamy looking pus. Several tubes of agar were inoculated from this and the remainder placed in sterile tubes for further examination.

The results of the bacteriologic examination of the cases from which cultures were made are as follows:

From Case No. 1.—A streptococcus and an undetermined micrococcus and a bacillus were obtained.

From Case No. 3.—A streptococcus and several (about six) forms of chromogenic micrococci and bacilli.

From Case No. 4.—A streptococcus which appeared for the greater part in pure culture. In three tubes *B. coli communis* was present.

In the plate cultures in agar made with the pus from cases Nos. 1 and 4 colonies of the streptococcus predominated. The relation of the streptococcus to the disease was determined by the following inoculations.

Two cows were inoculated with the purulent material obtained from cases Nos. 3 and 4, respectively. A small portion of the pus was diluted in sterile bouillon and about 2 c.c. of the suspension injected subcutaneously just above the hoof in the left fore foot in each animal. Swelling was noticed on the third day. It gradually extended up the leg to the knee joint. There was much tenderness and evidence of pain. The subcutis became indurated in the lower part of the leg, and on the

10th and 12th days suppuration was evident. The abscesses were not opened, but a few days later they broke just under the dew-claws, near the place of inoculation, and discharged a considerable quantity of cream-colored pus, after which complete recovery soon followed. The streptococcus was obtained in pure culture from each of these cases.

A third cow was inoculated with a pure bouillon culture of the streptococcus 24 hours old obtained from case No. 4. The inoculation was made by scraping the skin on the right fore foot just above the hoof, and after removing the epidermis the culture was rubbed on the raw surface. Swelling began in three days and the symptoms already described followed in regular order. A subcutaneous abscess formed and on the 14th day it discharged. The streptococcus was obtained in pure culture from the bottom of the freshly discharged abscess. Recovery followed.

Rabbits inoculated with pure culture of the streptococcus succumbed in from 36 to 48 hours to a septicaemia. Guinea-pigs were not affected unless injected with very large doses into the abdominal cavity. A careful study of these cases showed that while the manifestations of the trouble might warrant in a few cases the designation of foot-rot, and certain others that of erysipelas, the real trouble was simply an inflammatory process usually leading to suppuration. The fact that a considerable number of animals were similarly infected caused the serious apprehension concerning its nature while a single case would doubtless have received little if any attention.

Klein* found streptococci to be quite numerous in the lesions of the disease described by him as cow scarlatina, or the Hendon cow disease. In another outbreak of an apparently infectious disease among cattle which manifested itself by an ulcerating process on the teats and udders other streptococci were found one of which he considered as "standing in some necessary relation to the disease."

(To be continued.)

* *Loc. cit.*

MALIGNANT GROWTHS IN THE NASAL SINUSES.

BY C. E. CLAYTON, D. V. S., NEW YORK CITY.

Read before the Veterinary Medical Association of New York County at its December Meeting.

In presenting these few remarks on malignant growths in the nasal sinuses, I do not do so with the view of naming or describing all of them, but simply those which are most frequently met with and which it has been my good fortune to see and hold post-mortems upon, and also to present for your observation a slide made from a section of the last case I had. It is to Dr. C. C. Howard that I am indebted for this most excellent specimen and its exact nature, which Heitzmann describes and illustrates as epithelioma.

When these cases come under my observation I am always painfully reminded of my inability to tell their exact nature after viewing them with a microscope, due to my limited knowledge of normal histology. While it is an easy matter to study the subject and answer any questions one might be asked at an examination, it is far different in the actual examination of specimens. To be sure, if we make a slide from any part of the body we know what it is when looking at it, but should we be given a specimen without a history to examine, how many would know correctly what it was? I for one would hesitate in answering.

So we find that a knowledge of normal histology, not theoretical but practical, is what is wanted, or how are we ever going to appreciate or recognize the pathological changes which take place in disease, and it is in the latter condition with which we have to deal, and unfortunately for us it was not given to a great extent during our college course, but at present it is receiving the consideration it deserves.

Granting that our knowledge of pathological histology is limited, by what means are we to make up the deficiency in our clinical observations? I will give those which are most useful to me.

We are told that, clinically, tumors or new growths are malignant and non-malignant and differentiated by the following characteristics: the former are liable to recur after enucleation, to grow in distant parts of the body, and to be noncapsulated, although these conditions are subject to variations, and yet the growth be malignant.

Tumors are divided according to the tissues from which they grow or resemble, and are therefore classified as follows:

- I. Embryonic tissue—sarcoma.
- II. Epithelial tissue—carcinoma.
- III. Connective tissue—fibroma, etc.
- IV. Higher tissue—myoma, etc.
- V. Congenital—mixed.

It is the first two varieties to which I wish to call your attention and to bring out in the discussion which is to follow sufficient remarks which may enable us to make a positive diagnosis of malignancy, if not of the exact species, without the use of the microscope, which can be utilized later, in order to verify our conclusions.

In those cases where there is simply a collection of pus in the sinuses, the discharge from the nostril is more like what is termed laudable pus and possessed of very little odor or none at all and never streaked with blood; rarely if ever is there any distention of the facial bones, which only reveals dullness on percussion. When there are diseased molars, the above conditions are noted, with the addition of a very penetrating odor from the nostril and detection of involved tooth by the examination of the crowns of the teeth, which will be found diseased or show an increased sensitiveness.

In those cases of which I am now about to speak and which are responsible for this essay, we find the foregoing conditions changed from a slight to a marked degree; the discharge from the nostril is not of that thick pus alone, but of a mixture of pus, serosity and blood, and an odor far worse than that of a diseased tooth, a bulging of the facial bones, which is becoming softer than normal, and a very marked dullness on percussion,

and inspection of the buccal cavity is negative in the earlier stages, although in advanced cases we find the palate bone and hard palate involved and the growth extending down into the mouth. On trephining, which is the proper mode of procedure, as it enables us to make a more thorough examination, we find that by exploring the cavity, and the finger is the best for this purpose, that there is a collection of cheesy pus, together with a fluid of a yellowish-green color and the odor almost unbearable; we also note that the smooth walls of the normal sinuses are replaced by those much thicker and even of a roughened nature; also the small partitions of bone dividing the sinuses are more pliable and thicker than normal.

If the growth has assumed some size, it is sometimes firm and at others very soft, and the latter when irritated gives rise to extensive hæmorrhage. As the trephining has removed a considerable pressure from the part, the increased growth from day to day can be easily detected.

I have always supposed that these new growths were osteosarcomatous, for such I have heard them called until lately, but now believe they are either sarcomatous or carcinomatous. While some claim that sarcoma and carcinoma are the same, there must be some difference if we note the manner in which they invade other parts of the body, as the lymphatics are involved early in the latter and very rarely in the former.

To us in making a diagnosis, as far as malignancy goes, it matters little which of the two it may be in relation to the termination, for they both end alike, which is death either from exhaustion, hæmorrhage, septic infection or obliteration of the air passages.

It is possible to distinguish one from the other by the following conditions—at least I do in so far as I am able.

Sarcomata, either simple (which is rare) or of the mixed varieties, are firmer or more dense when of the osteoid variety, and this is the form usually found in this location; they have less fluid, they do not bleed so easily, not so offensive an odor, slower in growth, and more of a nodulated mass of a pinkish-

grey color, while the carcinomata (and the variety known as epithelioma is the most common found here), is much quicker in its growth, excessive hæmorrhage upon the lightest irritation, softness showing less organization, due to rapid growth, great quantity of fluid in its structure, odor, blackish-gray in color and devoid of any semblance of shape unless it might be the head of a cauliflower.

These, gentlemen, are the thoughts which have come into my mind while writing this article and by no means cover the subject as it should, but which I think are sufficient to start a discussion and by that means bring out the observations of those present.

If you will bear with me a few moments longer, I will outline briefly the case from which the slide presented for your inspection was taken: Ch. g., aged, which one of the students sought my advice on and afterwards sent to the hospital for examination, which revealed prominent swelling over the highest maxillary sinuses with bone softer than usual, marked dullness on percussion, discharge from nostril of pus, thin, watery fluid of yellowish-green tint and slight traces of blood and of the most offensive odor. Examination of buccal cavity and teeth negative. Upon opening the sinus at the centre of the swelling it was necessary to stand aside for a time on account of the odor and fluid which emanated from within. Upon exploring with the finger a soft roughened mass could be felt, which was most easily broken down and caused a most profuse hæmorrhage. Two days later the growth had grown so rapidly as to be plainly visible at the opening. I tried to get a section for microscopical examination, but it was impossible to do so without casting, owing to the temper of the animal; recommended that he be destroyed, but which was not done. About four days later the growth could be plainly felt in the back part of hard palate which was undergoing the degenerating changes.

If my memory serves me right, the animal died about nine or ten days after admittance to the hospital.

Post-mortem found the sinuses filled with a blackish-gray

mass and the bones of same apparently gone or so soft as to be easily cut with a knife ; the teeth were sound as far as I could detect, but could be pulled with slight traction, owing to the replacement of bone by the degenerative process.

PARTURIENT FEVER.

BY H. S. SMITH, V. S., ALBION, MICH.

Owing to the fact that the etiology of this disease is yet undefined, I will offer no apologies for ventilating my views upon this complex subject, except to Dr. F. L. Stevens, B. S., V. S., of Maine, for any seeming criticism upon his very interesting paper, which appeared in the August issue of the REVIEW, and which I read with great interest ; I consider it an able delineation in defense of the septic infection theory. He substantiates his theories by claiming "Puerperal Septicæmia" a better name, and I repeat his etiology here, in order to bring my views upon the subject in a more definite manner.

He tells us "the exciting cause of the disease, then, we must regard as an entrance and proliferation of the septic germ, in the uterus or uterine passages, and absorption therefrom of the resultant toxines or ptomaines ; the various conditions, such as heavy milkers, plethora, mature age, season, etc., can only be regarded as accessory or predisposing causes."

Now, taking for granted that this is the etiology : First, Why should an animal of the asthenic type be almost immune to it, and plethoric animals be so susceptible to it ? Also, why should the period of infection be limited to within four days ? If it is because the system is more susceptible to it at that time, why is it that we never have a case following difficult parturition, and other cases of carelessness, such as dirty instruments, bad surroundings, filthy stables, etc., which would seem from the septic infection standpoint to be fatal in almost every case. I have never heard of a case being a sequel to difficult parturition, and in fact not where there was any obstinate retention of the placenta, even where the decomposed membranes

and lochia were so foul that it was a task to remove them. This instance may substantiate the "anærobic theory," but it does not that of septicæmia. And, again, why is it that a majority of the cases will be found out in the lot with clean surroundings, and everything seeming all right, where there was no assistance required in delivery. Therefore, this disease differs materially from puerperal septicæmia in the human family, and the etiology given by Dr. Edward Reynolds, M. D., Fellow of the American Gynæcological Society, and President of the Obstetric Society of Boston, who says that "it is a matter of common knowledge that the usual source of infection is through defect, cleanliness of the hands, instruments of the accoucheur, or nurse, one or the other of whom almost always can be held responsible for the disease." And much more so does it differ from the recent theory of Schmidt, the etiology of which is not acceptable, even by those who concur in his theraphy, which appears so successful. However, the success of his treatment is not sufficient proof of the true cause of the disease, inasmuch as the remedy from its physiological action is equally an indicant in the antecedent etiology, as is his (Schmidt's); and whether he has discovered a specific or a more effective *modus operandi* of administering the drug in this peculiar disease, I am unprepared to state; perhaps both, but I am inclined to believe the latter.

Referring to his etiology, *i. e.*, of a suddenly increased lactation after birth, loosens large masses of glandular cells, or colostrum, and these undergo a decomposition and form toxines, and being absorbed into the circulation, result in auto-intoxication.

Inasmuch as I believe in auto-intoxication, I cannot accept the theory as arising solely from the udder, for the following reasons, viz.: Why should not an animal be just as susceptible before birth as after? And if an animal be milked, say a week or ten days previous to birth, this condition should have been thrown off, and good milkers in poor flesh would be just as likely to have the disease, owing to the fact that there would be just as much colostrum as in the fleshy animal, and animals

with caked udder are also immune to the disease. This theory is not based upon pathological construction, but is the result of a very successful experiment with pot. iodide, being injected into the milk glands, through the teats, and who is prepared to gainsay that we would obtain the same results by using the treatment hypodermically? Yet I think we would all of us be inclined to overlook the pathology if our success with the new mode of treatment equaled those we see recorded. And I cannot accept the puerperal septicæmia theory, for reasons which are as follows: That if animals of the asthenic type are immune to the disease, and plethoric animals susceptible to it, and that by precautionary and preventive treatment, constitutional (not germicidal), we can in instances prevent the trouble, and most of us have reasons to believe that we have known of instances where we would have been quite sure to expect trouble had it not been for these precautionary measures, which in no way tended to prevent the propagation of the streptococcus or any other germ, whether ærobic or anærobic, and we cannot substantiate this method and prove the germ theory.

And for these reasons I believe that parturient fever, and parturient septicæmia, as described in the human family, are entirely different, the former depending upon a constitutional condition, and the latter upon a local and septic one, and that the cow is much more susceptible to the former than the latter.

The cause of parturient fever I believe to be one of auto-intoxication, in the extended sense of the term, and is as different from septic intoxication as septic intoxication is from septic infection. I believe it possible to have auto-intoxication without sepsis; pyæmia, or pyæmic germs, resulting from suddenly increased or changed functionary action, of one or more organs of the body, but principally the circulation, as in this disease we have a perversion of two sets of blood vessels, viz.: By the increased volume of circulation to the milk veins, and the diminishing of the nutrient supply to the uterus, which during the period of gestation, became functional by aiding the process of osmosis, which, now, by nature's command, has ceased, and I

believe in cases of plethora that this command of cessation becomes one of severe exertion, and in the instances of disease it results in over-exertion, or in that old hackneyed phrase "loss of reflex action," which means loss of the vaso-motor control, which is the controlling mechanism of the blood vessels through its reflex nerves, which communicates the impulses to other nerve elements, thus giving rise to some new force, without any perception of the stimulus, the loss of which means the loss of excito-motor, excito-secretory and excito-inhibitory, the result being partial paralysis, functionary cessation of both, excretory and secretory organs and coma by dyspnoea, and in this condition of total collapse the toxic effects (or death) are due to an over-accumulation of *carbon-dioxide in the blood*. Yet this condition may be augmented by septic intoxication, such as an over amount of undigested and fermenting food stuffs in the alimentary tract, etc. And I am thoroughly impressed that the duration and intensity of the disease depends almost entirely upon such conditions, for I find those cases where flatulency and regurgitations prevail, the least hopeful; and I have noted with marked interest the symptoms from the onset, as the poor animal becomes weaker and weaker, and finally goes off into a coma, and total collapse in some instances. Also, the gradually returning of consciousness in ratio of the excretions and secretions. Whether they are the cause or result of regained vaso-motor control, I am unprepared to say, but I do know this, that when I find an animal comatose, I never look for regain of consciousness until I have a response of peristalsis, by having a natural action of the bowels, and in cases of prolonged and obstinate constipation I have prolonged and obstinate paralysis of limbs, etc. And I venture to say that we all agree that to promote glandular action is essential in all cases; and, while reviewing the accounts from time to time of other veterinarians' reports of their successful and unsuccessful treatment, I feel that I have been more successful than the majority of practitoners, and yet my mode of treatment has been nothing more than what is indicated and prescribed by most of our authorities upon the

disease, and I know not where to claim advantage, unless it is for watchful care and closely following and combatting the symptoms as they present themselves, and not being too heroic with any indicant less toxic effects result; for the animal might well be said to be in a "precarious condition," and I do not hesitate in saying that I think a great number of animals have been destroyed in trying to force nature, rather than allowing the disease to run its febrile course. For in giving repeatedly powerful febrifuges, etc., per mouth, while the animal is in a comatose condition, is like pouring medicine down a dead animal, for it lies dormant in the stomach, and when the animal revives it all takes effect at once and proves a toxic dose.

I strongly believe in the pot. iodide treatment, but have never used it as prescribed by Schmidt, but give it per mouth, and have, as I believed, obtained good results; still I can readily see and understand that by direct communication through the milk veins it is at once assimilated and acted upon by the system, and as I have heretofore mentioned that perhaps Schmidt's treatment is only a more successful way of administering the drug, and that the same results may be obtained from hypodermically applying it, and thus avoiding the impaired lactation as resulting from the iodine being set free in the former instance.

My first step toward treatment consists in securing a good comfortable place, with as much room as possible, still protected from extreme heat or cold; have the place thickly bedded, as it facilitates keeping the animal well upon the sternum (with head around to side, which I consider an essential thing, for I believe it avoids cerebral congestion, as it results where the animal is left sprawling on its side, *i. e.*, if the animal is down); draw the urine, give enemas to ascertain the condition of the bowels, then give a dose of oleum lini, raw, and turpentine as the case may demand; from $1\frac{1}{2}$ qts. to 2 qts. of the oil, with from 1 to 3 oz. of oil of turpentine. I have great faith in turpentine in this disease as a stimulant. It is discharged by the kidneys, bronchial membrane and skin, stimulating these channels of excre-

tion in its exit. It being so diffusible it acts rapidly. I also use an embrocation of turpentine, ammonia and raw oil, equal parts, around head and spine two or three times a day, rubbing it well in. When there are symptoms of cerebral disturbance, I give a sedative and febrifuge; aconite fl. ext., 8 to 10 drops every $2\frac{1}{2}$ hours until the animal is comatose, then once in every four hours. I give the iodide of potassium in three-drachm doses every $2\frac{1}{2}$ hours, combined with two drachms of pot. nitrate. I usually give the aconite with it after the animal is comatose, as it saves unnecessary drenching. Now, as regards drenching, some writers claim that deglutition is so impaired that it is useless to attempt giving medicine. I have never found any trouble whatever in giving a drench. Always have the neck as near in a line with the body as possible, holding the head in the natural position. I keep up enemata every four hours, drawing the urine every six hours, turning the animal from side to side about as often, also drawing the milk from the udder regularly, as it is secreted.

I have marked that the animal usually rests more comfortably upon the right side than on the left, and in those instances it is not advisable to leave them any longer than until they show symptoms of uneasiness, caused by pressure upon the rumen, and when the animal becomes comatose I consider the case more hopeful, as the chances for cerebral disturbances are much lessened, and I rarely ever lose a case after this stage is reached; yet in profound coma I guard against collapse, by giving spirits æther nitrosi occasionally, to carry the animal through, and as the animal shows symptoms of returning consciousness I give the potassium iodide and nitrate, only every four hours, aconite, eight drops every six hours, resorting to nitrous æther and nux. If the vulva has that flaccid appearance, I add ergot, as follows: take nitrous æther, 2 oz.; nux vomica, fl. ext., 2 drachms, and ergot fl. ext., 2 drachms, every four hours, alternating with the pot. iodide and nitrate, and after 24 hours of this treatment I discontinue the potassium entirely, using only the nux vomica and nitrous æther, giving perhaps 6 or 7 drops of aco-

nite in the animal's drinking water to prevent the water from chilling the animal. Never combine aconite with nitrous æther, for the stimulant carries directly to the nerve centre and produces death by paralyzing the motor nerves. Do not push stimulants too soon. And as a nerve tonic I prefer nux to the alkaloid, as I think it acts more unanimous and less liable to produce shock.

I am very careful that the animal does not get any solid food for at least 48 hours after consciousness returns, giving gruels, etc. I have known cases I lost that I could not account for in any other way than feeding too soon upon solid food, hence producing a secondary attack of the disease, otherwise the animal recovers as quickly as taken down. I find that animals are more susceptible to repeated attacks, each succeeding attack being less severe.

Now, this treatment is no deviation from all that have been given us, unless it be the discarding of magnesia, sodium and salines, as a cathartic, which I believe to cause trouble in all instances, as they are not taken up by the stomach, hence they nauseate and cause bloating, thus impairing respiration, and in many cases producing death by dyspnœa, which is avoided by using the raw oil; besides, the combination of the turpentine checks undue fermentation, and acts as a gastro-intestinal stimulant, besides stimulating the vaso-motor centres. I know my success has been marked since I have substituted the magnesia by oil and turpentine. In the last two years I have treated 23 cases in all, losing 4. Two were suffering at the time from indigestion; one, I think, by using too much aconite, and the other after its recovery, from allowing solid food too soon.

IN THE BAY STATE. — The following letter is from the *American Horse Breeder* of Dec. 23: "E. Pepperall, Mass., Nov. 8, 1899. To the breeder from a reder.: Would like some infilmation in regard to a mann doing Vetenery work in mas-sassachutis has he got to be agereautate of some Colleague and go before the state bord before he cann practise Vetnery Work can he hand out his sine without a lisenceornot."

REPORTS OF CASES.

“ Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

VERY LARGE EQUINE NASAL POLYPUS.*

By ALBERT BABB, M. D. C., Springfield, Ill.

On April 30, 1896, Mr. K—, of Riverton, brought a large brown ten-year-old gelding to my veterinary hospital for treatment. He presented a very grotesque appearance indeed, for while the left nostril was of normal dimensions, the right was distended to its greatest capacity by an immense fibroid growth which extended about an inch below its circumference. The owner said he noticed something growing there about three months prior to that time, but that much of its size had been attained in the last sixty days. He also stated that, since the weather became quite warm, the animal could not get enough air to enable him to do full work.

After we settled the financial part of the transaction, which to the veterinarian in that year was not an unimportant affair, the patient was cast, and the operation begun. The neighboring parts were cleansed with an antiseptic and the instruments placed in a solution of the same. With difficulty a sharp bistoury was introduced, the cutting edge then turned outwards and upwards and an incision made from the margin of the nostril directly into the re-entering angle formed by the nasal prolongation and the premaxillary bone. This procedure gave more space to dissect the base of the tumor from the ala of the false nostril to which it had securely grown. After the attachments below were separated with the scalpel, the poll meanwhile being raised by an assistant to prevent any flow of blood into the larynx, the whole mass was quickly seized with the hands and removed by firm torsion. The horse was then allowed to get up and the wound in the nostril united by interrupted sutures.

On examination the polypus proved to be conical in shape with a base six and one half inches in diameter and a length of twelve inches. The apex was attached to the turbinated bones while the upper half formed an elongated pouch, whose walls

* Read before the Illinois State Veterinary Medical Association, Nov. 16, 1899.

grew from the same parts, and which contained about five ounces of a straw-colored fluid. The base was incised longitudinally for five inches and two small cavities exposed holding about an ounce of a similar liquid. The surprising feature of this case is the size of the tumor for, besides the six ounces of serum just mentioned, it tipped the balance at two pounds, two ounces and a half.

CAUDAL MYECTOMY.

By J. A. McCrANK, D. V. S., Plattsburgh, N. Y.

In the May (1898) number of the AMERICAN VETERINARY REVIEW Dr. Williams, of Cornell, reported the result of an experiment, in which he concluded that caudal myectomy took the place of clitoridectomy. About the same time I had a few vicious mares in my neighborhood similarly affected. I at once determined to try the experiment.

Case I.—Gray mare, trotting bred, very speedy, but so unsafe both in harness and in her stall that no driver would take her to train, and she was balky. She was driven two days after the experiment and was very sore but quieted wonderfully. To-day she is a gentleman's driver, so gentle that a lady with her children may be seen out in her carriage, driving about with perfect safety, and in the barn she is a pet.

Case II.—Chestnut mare, general purpose, raised on a farm, became so vicious that she could not be handled. She was brought to the city and traded into a jockey's hands; thus she went from one owner to another. She had to be fed from above; you could not approach her in her stall except you carried a pan of feed. I tried the experiment. To-day she is on a delivery wagon in this village—a gentle, trusty and valuable beast.

Case III.—Dr. M.'s mare was very vicious, switched and kicked both in stall and in harness. She broke his leg; in fact she was so unsafe that "Doc" was afraid to get drunk while he was driving her. I tried the experiment. She is perfectly safe and "Doc" can get gloriously full when he wishes and can drive home with safety.

Previous to Dr. Williams' report, the treatment about here was to nick the tail, set it up with pulleys and weights; when it had healed, the tail was amputated close. It was painful to see those poor beasts at work every day on the streets with no protection from the flies and a tail so short as to be useless. The

animals I have operated on have their tails in good shape, carried well, and useful as a protection.

I have tried the experiment on seven animals, and in two cases my work was futile, but I blame myself and the owner for the failure, as the patients were far out in the country. In those cases the beasts became less vicious, but did not carry a good tail.

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By PROF. OLOF SCHWARZKOPF, Flushing, N. Y.

OBSERVATIONS ON THE STERILITY OF MARES.—Frock-Schlesarz demonstrates in a lengthy and interesting article on the subject that in Schleswig 30 per cent. of the breeding mares remain unproductive. He cites the report from other countries, notably of France (50 per cent.), and thinks that this result in breeding mares is altogether out of proportion to the other domestic animals. In examining the causes he admits that the fault lies at times with the stallion, and cites instances where government stallions produced no offspring at all, or for certain periods, then again they became productive. In one case he found on microscopic examination that the semen of a stud-horse contained no spermatozoa. But he believes that the ordinary cause is to be found in the mares themselves; they were expected to perform regular and often hard work in the times intervening to breeding, that thus their generative apparatus became weakened, resulting in irregular periods of heat, and that too often old and worn-out mares were put to breeding. He goes at length into a consideration of the chronic catarrhs of the vagina and uterus, so frequently found in old breeding mares, but contends that the most common cause of sterility of mares is a stricture of the orificium uteri, which promptly yields to operation and treatment. He has practised artificial impregnation, but considers it as yet an uncertain method, certainly not always satisfactory. His observation is that mares so impregnated carry their foetus from 10 to 14 days above the typical periods of pregnancy.—(*Berlin. Th. Woch.*)

THE COLIC OF HORSES FROM A GENETIC AND THERAPEUTIC VIEW.—Dryneau has extensively experimented with meth-

ods of irrigation of the intestinal tract, using different fluid medicines. He finds that he has the best success with enemas of from 20 to 30 liters of lukewarm water.—(*Berlin. Th. Woch.*)

A CONTRIBUTION TO BACTERIOLOGICAL MEAT-INSPECTION.—Presuher, of the Hygienic Institute of Strassburg, took 58 samples of ordinary meat from abattoirs and meat-markets and examined them for bacteria. The surface of meats was found to be soon infested with several species of bacteria, whereas samples of the deeper layers, one c. m. below the surface, were found to be free even after six or seven days. He comes to the conclusion that ordinary meat (muscle) of healthy animals remains free from germs for at least six days, whereas the internal organs, especially the liver, contain bacteria in the parenchyma a few hours after slaughter.—(*Berlin. Th. Woch.*)

TUBERCULOSIS IN A GOAT.—Schlethaler reports a case of a goat, reared on cow's milk, which reacted upon the tuberculine test, and on post-mortem examination was found to be extensively diseased.—(*Berlin. Th. Woch.*)

RAILROAD-FEVER OF COWS.—Astor describes the symptoms of the disease which is common after long railroad transportation. The remedies tried were strychnine, alcohol, potassium iodide, atropin and chloral hydrate. So far no treatment has been effective except perfect rest in mild cases.

BACTERIOLYTIC ENZYMES.—Emmerich and Löw have made original bacteriological experiments in enzymes as the cause of acquired immunity and cure of infectious diseases. They are produced during the growth of bacteria, and in their development check the growth of the latter. In some cases it appears that an enzyme is produced which not only destroys the activity of the species which produced it, but of other bacteria as well.—(*Zeitschrift of Hygiene, etc.*)

ENGLISH REVIEW.

NOTES ON SOME ABDOMINAL OPERATIONS ON THE DOG AND CAT [*By F. Hobday, F. R. C. V. S.*].—In the September issue of the *Journal of Comparative Pathology and Therapeutics*, a series of abdominal operations are recorded by the author, in which the results obtained are carefully given, and which serve to illustrate the advantages that can be realized in various indications. For instance, the histories of five cases

are given, four in dogs and one in a cat, of vomiting and abdominal pain treated and relieved by exploratory laparotomy. One dog, relieved for three months, was afterward destroyed; one cat recovered; two dogs were relieved, but the last one, also relieved, was destroyed because having too early been carelessly fed by its owner, violent peristalsis set in and caused re-opening of the abdominal wound and prolapse of the intestines. A case of perineal hernia was cured; one of intussusception died after a few days of improvement. Three cases were operated by laparotomy with massage of the bowels for obstruction. Two died and one had to be killed for fear of peritonitis by irrigation of the contents of the bowels, which were felt in the abdomen during the operation. Gastrotomy for removal of foreign body was performed on a dog and a cat. Both died, the dog from internal hæmorrhage from rupture of the posterior aorta, the cat from peritonitis. A case of ascites in a female mastiff was relieved by puncture and removal of $5\frac{1}{2}$ gallons of fluid. She has been well since. Lithotomy was performed in five cases; in two, laparotomy and incision of the bladder, with recovery. Two died and the third was killed because of calculus in the urethra that could not be reached.

BOTRYOMYCOSIS ON THE SHOULDERS OF A MARE [*By W. R. Davis, M. R. C. V. S.*].—For some time the animal had been suffering with tumors of various sizes, round and at the base of the neck, until, being unable to work, and after having been unsuccessfully treated by several empirics, the author was called to see her. At that time she had a "necklace of tumors." There were four large ones, two on each side of the base of the neck, and besides these, several smaller growths, varying from a bean to a walnut in size. The skin of both shoulders was the seat of a number of thickenings from which the hair had disappeared. One of the large tumors had a fistulous opening, from which pus oozed out. This tumor was painful, and around it swollen lymphatic vessels could be felt. The animal was cast and the tumors removed, the large one by dissection, the smaller by scraping. The after treatment consisted in astringents and antiseptics externally, and iodide of potash internally. Microscopic examination revealed the presence of the botryomyces.—(*Vet. Journ.*)

A CASE [*By W. Owen Williams, F.R.C.V.S.*].—Under this title our esteemed *confrère* gives the concise history of a case of tuberculosis in a cow which by examination during life he had concluded must have been far gone in abdominal tubercu-

losis. The history of the animal was that she had been ailing, gradually losing her appetite, commencing to purge, went off her milk and rapidly lost condition. She was very lean, had a pendulous abdomen, hidebound, with considerable pain in the region of the liver, a temperature of 101.5, pulse rapid and weak. She had no cough. Tested with tuberculin, her temperature rose as high as 108° in 15 hours. She was killed and on careful examination only a small nodule the size of a pea was found in one of the glands of the chest, and nothing else. The author concludes: "I say, with the assurance of many years' experience, that this cow during life had, to me, every appearance of being affected with tuberculosis of her abdominal organs. After she had reacted so strongly to the test, my opinion was strengthened, but on post-mortem examination my opinion of myself as one qualified to give an opinion in such a case was completely shattered."—(*Vet. Journal*.)

FRACTURE OF THE TIBIA AND FIBULA [*By W. Pauer, M. R. C. V. S.*].—An aged cob while turned to grass at night, was kicked on the inside of the tibia. He showed a small skin wound, but no lameness; he was able to walk three days, but on the fourth was a little sore in the morning. He went to work, made a misstep and coming to a standstill was unable to put any more weight on the leg. The fracture was diagnosed without difficulty. At post-mortem the shaft of the tibia was found fractured vertically in the two lower thirds, in four or five pieces. The fibula was broken in two pieces.—(*Vet. Record*.)

FRACTURE OF THE HUMERUS [*By R. S. Collihole, M. R. C. V. S.*].—A fourteen-year-old gelding was turned to pasture. The next morning he was found badly lame, standing on three legs and not having the slightest power over the near fore limb. There was a wound just below the shoulder large enough to admit two fingers. After exploring it, the humerus was found fractured in its upper third. The animal was placed in slings and the wound treated in the ordinary surgical manner. The animal made remarkable progress. Thirty-six days after the accident, he was walked a few yards. He was still kept in slings for two weeks longer, when he was able to go home, a distance of 2½ miles. Now he walks and trots perfectly sound.—(*Vet. Journ.*)

RUPTURE OF THE HEART BY AN INJECTION OF BARIUM CHLORIDE [*By "Veritas"*].—A six-year-old carriage gelding is in poor condition. He has been poorly for the last two months,

and though feeding well showed weakness in his work. He has not been affected with colic before. This time he shows slight signs of intestinal pain, has a pulse of 60 and a normal temperature. Seventy minims of barium chloride are injected in the jugular vein, and within two minutes fell down dead. At the post-mortem there was found a slight congestion of the duodenum, with ascarides in its interior, and the heart had a longitudinal rupture of the right ventricle eight inches long. Prof. McFadyean, who examined the heart, said he found no diseased change about it. The author has never had any trouble with this treatment, giving sometimes as high as 80 minims of the drug.—(*Vet. Record.*)

ITALIAN REVIEW.

EXTIRPATION OF COLD ABSCESSSES IN THE MASTOIDO-HUMERALIS MUSCLE [*By Prof. Lanzilotti-Buonsanti*].—This mode of treatment is gradually taking the place of the old method by drug cauterization, with the red iron, and the application of blister. The author, who has had several times occasion to resort to it, divides the operation into four steps: (1) *Incision of the skin and subcutaneous tissue*, in the direction of the great diameter of the swelling and more or less parallel to the jugular groove. Small dissection of the cutaneous edges on each side, to uncover the tumor. (2) *Incision of the mastoido-humeralis*, in the same direction as the cutaneous incision and extending to the cavity of the abscess. This incision must be done carefully, by layers, and sometimes has to be quite deep. There is no danger in doing it, as only small blood vessels may be divided, which can be easily ligated or stopped with forceps. (3) *Lateral dissection of the walls of the muscles*, so as to isolate the superficial healthy structure from the deep, which is degenerated. This healthy part may be one centimeter thick or even less, but always sufficient to keep up the nutrition of the skin and prevent its ultimate sloughing. (4) *Removal of the degenerated parts of the tumor*. This is the most delicate part of the operation and the most dangerous. It is sometimes necessary to ligate the blood vessels, carotid and jugular, above and below the tumor, when this is taken hold of firmly, pulled outwards and removed by sections. The cavity, of various sizes, which is left is then well scraped, the ligatures, if any, are removed, a drainage tube put in place, and a suture applied on the skin and the remaining

healthy portion of the muscle. A month is generally required for a complete cicatrization to take place.—(*Clinica Veterinaria*.)

PARALYSIS OF THE LOWER JAW IN A DOG [*By Prof. Trischera*].—According to the opinion of the author, agreeing with that of others, this affliction is sometimes of rheumatic origin. He records the following cases as evidence: The former is that of a dog which after being kept in a warm apartment, regularly heated, had to remain in a damp, cold place, badly protected. During that time he took warm baths. After one of these he was found with his mouth half open, a condition which increased during the following two days. There was no lesion of the maxillary joint nor to the pharynx, nor any other abnormal manifestation; the dog was gay and coaxing. He was hungry, but was unable to take food and to be fed; his food had to be placed in his mouth. The rheumatic origin of the trouble seemed positive and the dog was treated accordingly; he recovered in less than fifteen days. In the second case, a dog which had been placed in a cold and damp kennel while in perspiration, presented the same condition. He was treated in the same manner, but his recovery was very tedious.—(*Clinica Veterinaria*.)

LUXATION OF THE HUMERUS IN A HORSE [*By Prof. A. Trischera*].—Although this case presents nothing unusual, says the author, it deserves notice by its rarity and by the comparative easy manner the reduction was obtained. It is the case of a fourteen-year-old horse which was found one morning lying on the right side. Being unable to get up, he was raised and thus his condition made out. There was a great deformity at the inferior half of the right shoulder. The animal was scarcely able to move and showed on the shoulder a swelling somewhat conical, formed by the humerus resting on the scapula. It was evidently a case of dislocation of the shoulder joint. The animal was cast on the left side and extension with counter extension was applied. After much effort which had to be repeated four times and applied by several men, the author at last succeeded in reducing the luxation. The patient was raised with much care, was walked slowly to his stable, having a strong man supporting the articulation during the walk, and was placed in slings. Two hours later a strong blister was applied on the shoulder joint. In 25 days the horse resumed work.—(*Clinica Veterinaria*.)

DEEP PUNCTURED WOUND OF THE THORAX WITH

LESIONS OF THE LUNG—RECOVERY [*By Drs. Luigi Sanplier and Tiziano Pierobon*].—A twelve-year-old mare received during a fall a wound on the left side of the chest, entering the thoracic cavity between the third and fourth ribs. When visited, two hours later, the authors found a circular wound, five centimeters in diameter, around which there was a subcutaneous emphysema extending to three-quarters of the neck, over the scapula and involving the left costal region. The exploration with probe, the abundant hæmorrhage which took place, the rapid exit of air from the wound at the time of expiration, the subcutaneous diffused emphysema, the length of the foreign body which had penetrated—everything pointed to the diagnosis and to a fatal prognosis. However, this animal was thrown, minute disinfection of the part was made, the lacerated muscles excised, the hæmorrhage stopped with plugging, the pectoral muscles were sutured and afterwards the skin, so as to prevent the entrance of air into the thorax. The subcutaneous emphysema was left alone. The animal had no reaction, her appetite was always good, the wound healed by first intention and work was resumed in 20 days.—(*Clinica Veterinaria*.)

POISONING BY VIRULENT HEMLOCK [*By Dr. Giovanni Battista Plotti*].—Called to visit a cow which salivated considerably and refused her food, the author diagnosticated a case of acute gastro-enteritis by the symptoms that were present, and on inquiring if other animals were sick in the stable, he was shown a young heifer and another cow also affected with ptyalism. He expressed the opinion that the trouble was due to the eating of some virulent plant, but was not able to state what. The cow died in forty-eight hours and at the post-mortem presented intestinal and meningeal lesions which confirmed the diagnosis. In talking the case over with the owner, he observed that *cæthusa minor* and *conium maculatum*, various kinds of hemlock, were growing about, and suggested to the owner to be watchful, as that might be the cause of the trouble. Two days after two other animals were diseased. A treatment was prescribed of tonic wine, alcohol and tonic aid with external stimulating friction. Some improvement followed. One cow recovered and ultimately died from exhaustion following abortion; a steer succumbed to intestinal invagination, but three others died, presenting at the autopsy a general œdema of the whole body, the meat soft, slight intestinal catarrhal inflammation, clots of blood in the heart, œdema of the nervous centres.—(*Clinica Veterinaria*.)

DEPARTMENT OF SURGERY.

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ANTISEPTIC WOUND TREATMENT.

The *principles* which now govern the therapy of wounds have been practiced in human surgery and have been known to the reading veterinarian since the late 60's, and with the exception of changes from time to time in the details of their application, they have remained unchanged through thirty years of almost incomprehensible advancement in the sciences concerned, *i. e.*, pathology, bacteriology, and surgery. During the last twenty years they have remained unchallenged and the searching scrutiny to which they have been subjected by the savants of the medical profession has only served to further demonstrate their exactness. What was a mere theorem in 1867 soon became an axiom and subsequently a corollary. In fact, so promptly did they revolutionize wound treatment that but a short time elapsed after their introduction into human surgery before it was regarded as criminal negligence to entirely disregard them.

But it cannot be truthfully said that the same revolution has taken place in veterinary surgery. On the contrary, the old methods or perhaps new empirical ones are still practiced by a large majority of veterinarians both of this country and of Europe. Here and there we meet a practitioner who has adopted "Lister's Postulates" for certain operations and here and there another who partially respects them in his practice generally, but the rank and file have never taken them seriously, at least not seriously enough to ever establish the claim of being up-to-date surgeons in the eyes of the scientist or educated layman, who, by the way, are equally wide awake to the meaning of the word "antiseptic."

It would seem hard to assert that the majority of veterinarians are not familiar with these principles even though so few have actually taken advantage of them. The truth is we have spent 50 years pleading their inapplicability to veterinary wound treatment instead of engaging ourselves in working out methods suitable for our purpose. We plead that our operative procedures often bring us too small remuneration to put into effect all the necessary details of antiseptic wound treatment, and that we are frequently confronted with obstacles that pre-

vent their observance in one way or another, but in spite of these excuses we cannot defend the accusation that we are poor surgeons, dirty surgeons, criminal surgeons, and that we actually owe our clients thousands of dollars for the consequences of septic processes which might have been obviated had we worked out and inaugurated better methods years ago; methods which, in a measure at least, compare with our present knowledge of surgical pathology.

There is evidence, however, that we are at the threshold of a new era in this connection, as shown by the active interest in antiseptic wound treatment that is becoming apparent here and there: In veterinary association reports, in veterinary journals and in the new veterinary texts books. Throughout the history of the American Veterinary Medical Association the subject was seldom approached at its meetings, but this year we were treated with an able consideration of the topic by Dr. Wm. Herbert Lowe, of Paterson, N. J., under the title of "Routine Manipulations and Operations from the Standpoint of Asepsis and Antisepsis." At the annual meeting of the State Veterinary Medical Society of New York Prof. Dr. Pierre A. Fish, of the New York State Veterinary College, opened the same topic for discussion under the title of "Some Theories and Experiments in Antisepsis." And besides these two examples the increasing interest in cleaner surgery is demonstrated in the reports of several state associations that have met during the year just closed. And again it is encouraging to note that all the leading colleges now have separate departments in which the subject of surgery is taught in detail and with due respect for the necessary manual training, in contradistinction to the old method of dismissing the subject with a few didactic lectures supplementary to the chair of medicine. At my alma mater we heard practically nothing of surgery, and when the subject was approached at all it was generally for the purpose of discrediting operative treatment. Neurectomy was spoken of as a complete failure, arytenectomy as almost a crime, and the veterinarian who practiced dentistry, we were told, belonged to the same category as lightning rod agents. If hundreds of young men have been so perfectly impregnated with this idea as I was on leaving college, it is no wonder that the profession in this country did not consistently advance in surgical therapeutics, and if we wait until our places have been filled by the better trained and better educated recruits now emanating from our colleges, the revolution will

drag along through another generation and the prestige we should now have will be denied us through our lives. We should retrace our steps to our school days and begin to train our minds and hands in the branches our instructors failed to train us. Surgery and sanitary medicine are bound to become the two great factors in our future evolution, and unless we begin to take advantage of all the known possibilities in these two domains we are destined to linger in the same old rut if not to become entirely obsolete. We may discover new procedures or add to the indications of the old ones, but unless we adopt antiseptic treatment to our technique progression in veterinary surgery will become an unknown quantity. The *art of surgery* and *antiseptic wound treatment* are of course two distinctive studies, but as the former is incapable of advancement without the latter, and as the healing of the accidental or surgical wound is of primal importance in surgery, much will be gained from a detailed consideration of the latter subject.

The *subject of antiseptic wound treatment* is one which cannot be profitably discussed by a mere mention of generalities. Like its application, the discussion must deal thoroughly and methodically with the minutest details in order to accomplish the desired results. If I were only to mention that wound diseases are caused by the intrusion of organisms and that the remedy consists simply in excluding such organisms, which in fact is the whole proposition, I would only be repeating a proposition that has been demonstrated long ago, and therefore nothing would be gained by submitting it. The problem we have to solve is not the cause of wound diseases but the method of preventing them. "How shall we prevent the intrusion of septic organisms into the wounds of our patients?" is the question we must answer.

Entering at once into the details of the subject let us first index a glossary of the terms used in its discussion:—

Sepsis (adj. septic) is the effect of bacterial ferments on nitrogenous material. It denotes *putrefaction* in contradistinction to the word *fermentation*, which is usually applied to the effect of ferments on non-nitrogenous matter; *e.g.*, carbohydrates. We are thereby justified in using the word sepsis in referring to the effect of *any* bacteria on *any* living tissue.

Antiseptic (noun, antisepsis) is a descriptive adjective often used as a noun. It refers to an agent or influence that is used to combat sepsis, while antisepsis denotes the condition thus created.

Asepsis (adj. aseptic) denotes the absence of any pathogenic organism. The terms "aseptic," "antiseptic," "septic," are used in referring to any substance that may contact a wound as well as to the wound itself. Thus an instrument is called aseptic, antiseptic, or septic, the same as a wound.

A *septic wound or instrument* in surgery is one that has been exposed to carriers of infection, whether it is known to be infected or not, because sepsis on an instrument and the first stages of sepsis in a wound can not be recognized macroscopically.

An *aseptic wound or instrument* is one that has positively never been contaminated or has positively been freed from contamination by the use of an antiseptic.

An *antiseptic wound or instrument* is one which contains a destroyer of infection, as a bandage containing mercuric chloride or a wound dusted with iodoform.

Septic process refers to one or more of the changes a wound may undergo when infected, as against sepsis, which refers to the whole process. The term in surgical pathology should refer to any changes produced by organisms, but some pathologists restrict its use to such accidental wound diseases as septicæmia, sapræmia, pyæmia, erysipelas, etc., in a manner that is somewhat confusing. The confusion arises from the interpretation of the word "putrefaction." Literally *putrefaction* refers to decomposition of nitrogenous matter in the presence of organisms with the formation of odorous gases, such as NH_3 and H_2S , while in pathology it may properly be used even when gaseous formation is not present. Therefore, as mentioned in the definition of "sepsis," it is not an error to refer to any bacterial wound disease as a septic process.

Suppuration denotes pus formation following an infective inflammation. Certain chemical substances (terebinthina, mercury, etc.) are capable of producing suppuration, but as these agents are few and are indeed seldom found in wounds the etiological research must be confined to vegetable parasites—bacteria. The pus-microbes which have a wide diffusion are:

- (a) *Staphylococcus pyogenes aureus*.
- (b) *Staphylococcus pyogenes albus*.
- (c) *Staphylococcus pyogenes citreus*.
- (d) *Micrococcus pyogenes tenius*.
- (e) *Streptococcus pyogenes*.
- (f) *Bacillus pyocyaneus*.
- (g) *Bacillus pyogenes foetidus*.

Staphylococcus pyogenes aureus is the most common of all the pus-cocci, and is found flourishing on the skin of man and animals, under the finger nails, in the dust of rooms and in pus of both internal and superficial lesions. It is the common organism of acute abscess.

Staphylococcus pyogenes albus is also a parasite of the skin of man and animals and in abscesses it is usually associated with the golden variety. Its pathogenicity is somewhat less than the aureus.

Staphylococcus pyogenes citreus is less virulent and not so widely diffused as the two former, but fresh cultures injected subcutaneously will produce an abscess from which new cultures can be obtained.

Micrococcus pyogenes tenuis is rather an innocent organism as it produces only a local suppurative process with inflammation of a mild type.

Streptococcus pyogenes is the coccus of erysipelas, but it is also one of the pus-cocci. It is found in the mucous membranes, the skin, the secretions and the excretions of man and animals, and as it does not multiply outside the body it is a parasite in the full sense of the term. In disease it develops chiefly in the submucous and subcutaneous tissues, but it may also be found in suppurating foci. It is not so dangerous to the lower animals as to man. The former seems to resist erysipelas to a marked degree.

Bacillus pyocyaneus is the bacillus of green pus and does not greatly concern the veterinarian.

Bacillus pyogenes foetidus, *micrococcus tetragenus*, typhoid bacillus, *diplococcus pneumoniae*, also belong to this category, but the reader must refer to text books on bacteriology for a more elaborate description of these as well as of those briefly discussed above.

Wound infection refers to the invasion of vegetable parasites into a trauma and might nicely be divided for our purpose into *typical infection* and *atypical infection*.

(a) *Typical infection* may then be used to refer to the invasion of particular organisms which always produce their typical lesion, such as the bacillus of Nicolaier, bacillus tuberculosis, streptococcus pyogenes, staphylococcus pyogenes aureus, etc.

(b) *Atypical infection* is the usual wound infection produced by a variety of organisms capable of producing septic processes, e. g., bacilli of putrefaction, a mixed infection of any of the above mentioned, and a host of other cocci and bacilli which

are only capable of producing slight disturbances. Many of these are in fact non-pathogenic, or at least only serve to create favorable media for the more virulent types.

The etiology of the diseased process which exposed wounds undergo is not satisfactorily demonstrated further than that it is due to the intrusion of organisms, but recent research has shown that the pus-microbes play an important rôle in all wound diseases. The variety of conditions we macroscopically observe in wounds may all be due to the same organism producing only a slight abscess in one instance and a grave septicæmia or pyæmia in another, precisely as we observe in tuberculosis, tetanus, glanders, etc., all of which also vary from very slight to very grave affections. The diseases of interest to the veterinarian, occurring as a consequence of wound infection are :

- (a) Sapræmia.
- (b) Septicæmia.
- (c) Pyæmia.
- (d) Tetanus.
- (e) Actinomycosis.

Tuberculosis, glanders, anthrax, syphilis, gonorrhœa, etc., are of minor importance so far as equine surgery is concerned.

Sapræmia is the constitutional disturbance produced by the absorption of the toxalbumins of wound infection.

Septicæmia is the constitutional disturbance of wound infection when the organism, without producing any secondary pus collections, becomes disseminated through the body by means of the circulation.

Pyæmia refers to the same condition when the organisms produce secondary suppurative foci.

Tetanus, a sapræmia, is the constitutional disturbance produced by the bacillus of Nicolaier when inoculated into a punctured wound. It is a common as well as a serious wound disease and should always be kept in mind in surgical operations.

Actinomycosis is an accidental wound disease and is probably never caused by a surgical wound.

Inflammation is the most important of all the pathological processes to the surgeon. A detailed description would be out of place in such a discussion on account of the space required. We should, however, stop long enough to mention the two forms of inflammation of interest to the surgeon :—namely,

- (a) Aseptic inflammation.
- (b) Infective inflammation.

Aseptic inflammation is no more nor less than the effort of nature to repair an injured tissue. The changes which the tissues undergo correspond precisely to the extent of the injury. It is in fact more of a physiological than a pathological process and is now described as regeneration rather than inflammation.

Infective inflammation is one due, either primarily or secondarily, to the intrusion of organisms. The changes of an infective inflammation depend upon (1) the virulence of the invading germs, (2) the resistance the tissues are capable of offering, and (3) the fertility of the soil invaded.

Localization of Septic Organisms.

The means by which infectious organisms become localized either in a wound or healthy tissue has been discussed by the earliest defenders of the "germ theory." So far as traumata are concerned it has been repeatedly demonstrated that organisms within the blood channel readily find a fertile field for the exertion of their pathogenic properties in a tissue that has been deprived of its vitality through injury. The encroachment of tumors and inflammatory swellings upon the lumen of blood vessels has also proven a cause of abscess formation in the same way, *i. e.*, by destroying the vitality of the tissue thus injured. Along the same line I might mention the oft-proven statement that the lesion of one bacteria may be the cause of a secondary infection. In his discussion on the etiology of tuberculosis Koch explains the presence of pus-cocci in the tubercular deposits of the spleen and other organs by assuming that they entered the circulation and were arrested in the capillaries by the presence of the tubercular lesion. We thus see that it is possible for a trauma to become infected from within. This form of localization interests us especially in our study of the etiology of such diseases as :—

- (a) Poll-evil.
- (b) Fistulæ of the withers.
- (c) Deep shoulder abscesses.
- (d) Deep seated abscesses generally.
- (e) The abscess of rhino-adenitis.

In veterinary subjects wounds on the surface of the body, whether accidental or surgical, are indeed rarely contaminated with organisms from within. The patients upon which we operate are rarely afflicted with the susceptibility or diseases which favor such infection, and therefore it is *wound infection from without* that alone concerns us in our surgical operations. Localization from without can take place only through

the *substances* which touch the wound and consequently our attention must centre upon them. The substances which contact wounds are :—

- (a) Air.
- (b) Instruments.
- (c) Hands of the surgeon and assistants.
- (d) Surgical dressings.
 - (1) Wadding.
 - (2) Bandaging.
 - (3) Sutures.
 - (4) Occlusive plasters.
 - (5) Drainage apparatuses.
- (e) Accidental wounding bodies.
- (f) Antiseptic solutions.
- (g) Cleansing materials.
 - (1) Soap.
 - (2) Water.
 - (3) Sponges.
 - (4) Syringes.
 - (5) Scrubbing brushes.
- (h) The habitat of the wounded patient.
 - (1) Litter.
 - (2) The floor of the stable.
 - (3) The soil.
 - (4) The sides of the stall.

As the above mentioned items are the sources of wound infection we must next consider their dangerous properties and especially the best practical methods of rendering them innocuous.

Air is everywhere and therefore contacts all wounds. As a carrier of infection into wounds it was suspiciously regarded in the very first attempts at antiseptic wound treatment, and as a consequence methods were inaugurated by which its infectious organisms could be destroyed or at least rendered innocuous. The room in which an operation was to be performed was sprayed thoroughly with carbolic solution. The same solution was also sprayed in the environs of the operating region during the entire procedure and until the occlusive bandage was adjusted. Subsequent experiments, however, have shown this precaution to be superfluous, the air having been found to be less dangerous than was first supposed. The truth is air of a still room, free from dust or drafts that are capable of carrying dust, is a safe medium for exposing even the internal cavities. The

room must be scrupulously clean and every item which it contains must be free from contamination. For veterinary purposes the room must be clean and all dust allayed by sprinkling with antiseptic solution. A dirty operating table, dusty floor or litter that is dry enough to impregnate the air with dust must be avoided by cleanliness and sprinkling. If the patients are cast upon a loose litter the operating region must be protected from flying particles by placing a sheet between the wound and the litter. The country practitioner should when possible select a clean lawn away from any dust-containing air, or if a straw bedding becomes necessary it should be spread out some time before the operation begins so as to allow all dust to settle or blow away and then it should be sprinkled to prevent dust from the animal's struggles. The same principles apply to operations performed in the standing position. These simple precautions I consider sufficient so far as dealing with the air in veterinary operations is concerned. The veterinarian who operates only upon valuable patients and as a consequence has the means to equip himself with an operating room something after the fashion of those of our modern medical colleges, might, I confess, readily improve upon these comparatively simple rules.

Instruments are almost continually exposed to infection and as they generally come in contact with every recess of wounds they must be accurately deprived of their dangerous properties.

Instruments.—Hot water is not as expensive as its apparent unpopularity in veterinary practice would indicate. Almost everything—except the surgeon and the patient—can be sterilized by boiling. Instruments should be boiled repeatedly, in fact before each operation, and when this has been done they should be placed in a case that has been subjected to the same treatment. The old fashioned leather case which the veterinary surgeon usually carries with him is a serious reflection on his knowledge of surgery, and should be discarded for the more modern metal ones, which can be boiled together with the instruments. The large instruments, such as the ecraseur, should be treated in the same way and conveyed to the operating place in a sterilized towel, or what is still better in a regular sterilizer. How many of us have a sterilizer in our equipment? Surely they are not too expensive. Rubber instruments can only be sterilized with strong antiseptic solutions, as excessive heat often ruins them. The safest disinfectant for such instruments is a 1% mercuric chloride solution. In any event the principle must not be forgotten: *i. e.*, purify the instruments. To keep them

aseptic during an operation they should be placed in a 10% carbolic solution and always replaced there when not in use. A 10% carbolic solution is none too strong for this purpose unless the container has been sterilized and the water used in making it has been boiled and handled in the proper manner. The objection to such a solution is that it will cauterize the hands, but this can be obviated by raising the instruments from the solution with a forceps instead of with the fingers. Weaker carbolic solutions are treacherous when made from ordinary tap water and contained in a "doubtful" vessel.

Hands of the Operator.—The hands of the veterinary surgeon are probably more dangerous than any other of the infection carriers. We are often compelled to assist in securing our patient before the operation can proceed, and after it has begun we frequently find it necessary to touch this rope or that strap to tighten some part of the casting appliance that has become loosened, to say nothing of the many times we unconsciously touch our own clothing, the operating table or the uncleansed parts of the patient. The hands should first be scrubbed with soap and hot water and then immersed in a 1-500 mercuric chloride solution. This solution is kept separate from that to be used upon the patient and is utilized repeatedly during the operation, especially when the hands have touched parts of the animal or any manner of substance not sterilized. Digital examinations must be avoided as much as possible, even with the supposed clean hands. The assistants who have not taken the same pains to disinfect their hands must never be permitted to touch the wound.

Surgical Dressings.—The common surgical dressings used in veterinary practice are: muslin and woolen bandages, oakum and cotton wadding, and silk and linen sutures. These sutures should be subjected to a prolonged immersion in a strong antiseptic solution. It is a good practice to keep them bottled up in such solutions ever ready for use instead of depending upon a hurried sterilization. The wadding and bandages do not contact the wound as closely as the ligatures and are as a consequence perfectly safe if soaked and wrung out moderately in a 1-500 mercuric chloride solution.

The adjustment of drainage tubes in veterinary subjects is not a success, especially in antiseptic veterinary surgery. Besides the failure to answer the purpose for which they are intended, they can seldom be adjusted and retained satisfactorily. Drainage by packing with oakum or cotton is more suitable for

our purpose and therefore in this connection we have only to consider the sterilization of the wadding as before mentioned. Aseptic wadding or weak antiseptic wadding is the most suitable drainage, for if soaked in a concentrated solution the cauterant effect will retard regeneration.

Occlusive plasters are useful in veterinary operations to clothe wounds on those parts of the body that are not easily bandaged, and as they come in close contact with the wound they must be regarded as possible carriers of infection. But as most of them are antiseptics, there is no great danger from this source. The chief ones are:—

- (a) Collodium.
- (b) Tar.
- (c) Lead plasters.
- (d) Rosin and oil mixtures.
- (e) Canada balsam.

Accidental Wounding Bodies.—Any article that inflicts a wound accidentally must be regarded as septic and hence wounds thus made must be treated as septic wounds.

Antiseptics and Antiseptic Solutions are not always innocent articles and perhaps oftener than suspected they are the real cause of failure. In order not to injure the textures antiseptics must not be too concentrated. In fact the concentration in which they must be used in wounds is not capable of destroying all the spores of the organism they contain and when injected into the recesses of a wound the liquid of the solution soon evaporates and leaves the organisms to revive and exert their pathogenic properties. Therefore often the very agent we depend upon to disinfect may prove the real carrier of infection. The bottles containing antiseptics must never be unnecessarily exposed and the solution must be made from clean water and within a scrupulously clean container.

Cleansing Materials.—The articles used to cleanse the wound or operating region are water, soap, pails, syringes, sponges, brushes and antiseptic solutions. It is easily seen that these articles are not to be overlooked in regard to their infectiousness. The sponges and syringes can be made safe with sublimate solution after having been previously boiled. As sterilizing the water and container is not always convenient we will have to be satisfied with perfect cleanliness.

Habitat of the Patient.—As the wounds of our patients often come in contact with the stall, litter, soil of the pasture, etc., it is readily seen the infection from this source must be of

frequent occurrence. We can wash the stall, scrub the floor, use clean litter and confine our patients in such a manner that the wound will not come in contact with any of these items, but of course these precautions are only used as supplementary to the usual occlusive dressing. The soil and the stable floors are important in that they are the exogenous habitat of one of the dangerous wound diseases, namely, tetanus, and punctured wounds exposed to them must always be treated with this point in mind.

Wound Sterilization.

There is of course no part of surgical sterilization of more importance than that of dealing with the wound itself, its vicinity or region in which a surgical wound is to be made. All *accidental wounds* must be regarded as septic ones and therefore the first duty in their treatment is to sterilize them and their immediate vicinity as perfectly as possible. I use the expression "as perfectly as possible" because it is impossible to perfectly sterilize the surface of the body or the recesses of a wounded texture. It is clear that no form of disinfection is capable of completely destroying the organisms lodged in the recesses of the skin or wounds without also destroying the tissues. We may boil an instrument or immerse it in a concentrated antiseptic, but the living tissues will not withstand such treatment, and therefore when organisms have once invaded a wound it cannot be again made aseptic—in the literal sense—without the use of agents which will cauterize the textures in which they are lodged. Therefore we can only make wounds aseptic with the hot iron or with cauterant chemicals and never with the ordinary innocent antiseptics. The condition we aim to create is asepsis in the "surgical sense," *i. e.*, we render the organisms as innocuous as possible and then establish conditions which are unsuited for their growth. Such a wound the surgeon calls aseptic. The method of making a wound aseptic when it is once contaminated is by patient irrigation with antiseptics of such concentration that the body tissues will not be materially injured. The vicinity is first scrubbed energetically and treated with stronger solutions and finally the whole area is clothed with absorbent-antiseptic material, which prevents further invasion from without and by absorbing the wound exudates deprives those within of their nutrient media. We might also take into consideration the assistance we receive from the tissues themselves. Having temporarily deprived the wound organisms of their virulence and their media the phago-

cytes of a healthy tissue will probably do the rest. From these principles we adopt the following technique: Clip or shave the hair from the vicinity, scrub it with clean hot water and soap and then bathe for a time with a strong mercuric chloride solution (1-250). The wound itself is trimmed of all ragged and necrotic portions and then irrigated for a *long time* with a solution 1-1000 or even weaker if more time can be given to the irrigation. It is then dusted lightly with iodoform and if suturing is indicated the edges are brought together and the whole surface covered with a thick layer of the same powder. The wound is now ready for the occlusive dressing to suit the location. There need be no great variation from this simple practical method of treating the accidental wounds of our patients. The matter of drainage will occasionally demand a change of the technique.

The *operating region*, which in most cases refer to the unbroken skin, is treated in much the same way. The hair is clipped or shaved, scrubbed as before mentioned, and bathed for a time with mercuric chloride (1-250 or even stronger) and to further perfect the disinfection the moistened skin may be rubbed with iodoform. A wound (incision) made in such a surface is aseptic and therefore requires no antiseptic irrigation and under no circumstances must any substances not perfectly sterilized (antiseptic solutions included) be permitted to come in contact with it. The baling of blood, the manual examination, the suturing, etc., must not be permitted to become the cause of contaminating such a wound.

(*To be continued.*)

SURGICAL ITEMS.

The Importance of Diagnosis.—In our upward movement in the science and art of surgery we should stop long enough to consider whether or not we are making equal progress in the art of diagnosis. Rational therapy as well as correct prognosis depends exclusively upon accuracy in diagnosis. In fact, without an accurate estimate of the lesion at hand no surgical operation should be undertaken for its relief. No one thing will bring us more prestige than a well executed operation that terminates favorably, and probably nothing will bring us a more prompt condemnation than the one that fails in its purpose. Failure is often due to mistaken diagnosis. In veterinary surgery errors are of course excusable, as diagnosis largely, in

fact almost entirely, depends upon objective phenomena, but because the task is a difficult one, in view of its importance, should be the very reason why we should exert ourselves along this line. We have learned diagnosis, both at colleges and in practice, much after the fashion of the fellow who learned a recipe for each disease and hence we are suffering the consequence. General diagnosis, like general chemistry, general therapeutics, general pathology and general surgery, are the studies which fit us for advancement. Special work alone without the basic knowledge would have prevented satisfactory progress in these branches precisely as it has done in diagnosis. We need a special chair on diagnosis in every veterinary college, and its occupant should be a practitioner of wide experience. We need a text book on diagnosis written by an observing practitioner who is conscientious enough to record only substantiated assertions. Or we need a martyr to translate such a work from the German or French, preferably the former. We need a better knowledge of pathology, which in turn assists in diagnosis. To operate or not to operate, that is the question. The answer is always found in the diagnosis.—(L. A. M.)

Iodoform is quite an expensive drug for general use in veterinary practice, although it is admitted on all sides to be the most suitable dry antiseptic for our purpose. Its cost can be greatly lessened by using it in the form of iodoform sugar (iodoform 5, sugar 95). The antiseptic properties of sugar alone are surprising.—(L. A. M.)

ARMY VETERINARY LEGISLATION.

The Committee on Army Legislation of the American Veterinary Medical Association, under the energetic and intelligent guidance of Chairman Salmon, has again entered upon the active work of attacking the present Congress in order to secure the further recognition of the veterinary service of the Army. Our readers know how gallantly this committee struggled for this act of justice at the last session, how they partially succeeded to the extent of securing the elevation of the veterinarian to the pay and allowances of a second lieutenant, but failed in securing his rank by reason of the compromise army bill, and they will appreciate the energy with which they return to the conflict, and have no doubt but that they will em-

brace the opportunity held out to them of assisting the committee by moral and substantial support.

The REVIEW presents herewith a copy of a letter sent to veterinarians by the Committee, together with the circular of information for their guidance in seeking the aid of Congressmen and Senators.

WASHINGTON, D. C., December 11th, 1899.

DEAR DOCTOR:—This committee has been instructed by the American Veterinary Medical Association to again bring the matter of legislation for the army veterinary service to the attention of Congress, and to make a further appeal for a measure that will give our army the same expert knowledge in the selection, care and medical treatment of its horses as has been furnished to the armies of other civilized countries, and which will incidentally give the army veterinarian the respect and authority that will make the position attractive to educated and competent men.

Some progress was made at the last session of Congress, but our committee is of the opinion that it is essential for the highest efficiency of the army, for the honor and standing of our profession, and to secure the humane treatment of army horses, that the veterinarians already provided for shall have the rank of second lieutenant, that the service shall be extended to the artillery and transportation department, and that there should be a veterinary director.

The committee, knowing your interest in all that pertains to this subject, has directed me to send you our printed circular of information, and to ask you to assist in the efforts to obtain the desired legislation. You are, therefore, requested to write at once to the member of Congress from your district and to both Senators from your State, telling them that you are greatly interested in the proposed legislation for improving the veterinary service of the army, and urging them to use their influence to secure its passage. It is thought that you have friends, not necessarily veterinarians, who are also interested, and who would, on your request, send similar letters.

Will you not attend to this at once and write to me so that I may know you have received this letter, and that you have written to your representatives in Congress? As the expense for printing and postage to reach the large number of veterinarians who are co-operating is considerable, the committee will be glad to receive and acknowledge any small contribution which you may desire to make for this object.

I am also directed to thank you for the assistance which you have heretofore given, and to say that the prospects are favorable for success at this session of Congress.

Very truly yours,

D. E. SALMON, *Chairman.*

Address P. O. Box 189, Washington, D. C.

NEEDED VETERINARY SERVICE—UNITED STATES ARMY.

Attention is invited to a few facts showing the importance of legislation to establish a Veterinary Corps in the United States Army, and the advantages and economy which will result from it.

France, Germany, and other countries have, within two years, largely increased the force in the Veterinary Corps of their respective

armies. The United States stands alone among the principal civilized countries of the world in having no organization of a veterinary service for the care of its army animals. It is only in the last year that an examination for competency has been required from the veterinarians employed in the cavalry regiments.

The Annual Report of the Quartermaster General of the army for 1899 shows the purchase during the year from July 1st, 1898, to June 30th, 1899, of the following animals :

	Number.	Total Cost.	Aver. per Head
Cavalry Horses	2,094	\$219,727 17	\$104 94
Artillery Horses	775	96,374 04	124 35
Riding Horses	176	22,730 00	129 15
Draft Horses	15	2,496 50	166 43
Pack Horses	71	3,595 00	50 63
Bell Horses	1	50 00	50 00
Draft Mules	3,834	416,131 50	108 54
Pack Mules	301	28,294 00	94 00
Oxen	16	1,600 00	100 00
Total	7,283	\$790,998 21	

There remained on hand at the close of the fiscal year, June 30th, 1899, 12,622 horses and 13,158 mules, valued at over \$2,500,000.

In addition to this enormous investment in animals for the cavalry, artillery and transportation, the army purchases large quantities of animal food, the quality of which requires inspection.

General Philip Sheridan, the great cavalry officer, when Lieutenant General of the army, had drafted a scheme of organization for a Veterinary Corps, but his death delayed the consummation of his plans, and it was not until the last Congress, that active measures were taken, with the approval of the Secretary of War, toward the foundation of a proper veterinary service for the army.

Senator Kenney of Delaware, in introducing a bill with this object, said among his reasons for the necessity of the legislation :

In any reorganization of the army of the United States there is no question of more importance to its efficiency and welfare than a properly established veterinary corps. In and out of the army for many years there have been men who have appreciated the value and necessity of a veterinary corps in our army, and on more than one occasion bills looking to that end have been formulated and presented to Congress, but none have ever been enacted into law.

Most of the European nations have as a part of their military establishment well-organized veterinary corps.

The English army has a principal veterinary surgeon with the rank of a colonel, a first-class veterinary surgeon attached to each army corps, a first-class veterinary surgeon attached to the inspector-general of the line of communication, with subordinate grades of veterinary surgeons and veterinary surgeons on probation.

The French army has 11 first-class principal veterinary surgeons

with the rank of colonel, 42 second-class principal veterinary surgeons with the rank of lieutenant-colonel and major, 189 first veterinary surgeons with the rank of captain, 270 second veterinary surgeons with the rank of first lieutenant, 91 assistant veterinary surgeons with the rank of sub-lieutenant.

The German army has :

- I. 16 Corps veterinarians with uniform corresponding to major.
- II. * Brigade " " " " captain.
- III. 116 Regimental " " " " 1st lieutenant.
- IV. 215 Veterinary surgeons " " " " 2d lieutenant.
- V. 106 Assistant veterinarians ranking as Sergeant Major.

The veterinarians I-IV rank as higher military officials.

In the Italian army there is an inspector-general of military veterinary medicine with the rank of colonel, 1 veterinarian with the rank of colonel, and 1 with rank of lieutenant, with inspector-general's office at headquarters of the army; 2 with rank of lieutenant-colonel and 10 with that of major to the 12 army corps as inspectors of public animals; 24 with rank of captain and 48 with rank of lieutenant to the 24 regiments of cavalry; 12 with rank of captain and 24 with rank of lieutenant to the 12 regiments of artillery; 12 with rank of captain and 36 with rank of lieutenant to the battalions of the train; 2 with rank of lieutenant to engineer corps; 1 rank of captain to military school; 1 rank of captain, 2 rank of lieutenant, to cavalry school.

In the Belgian army there is the chief of service. Chief veterinarian (lieutenant-colonel); 12 chiefs of service; 2 principal veterinarians (majors); 10 regimental veterinarians first-class (captains). There are twenty-two adjuncts to chiefs of service: Five regimental veterinarians second-class (captains—"en second"); 9 veterinarians second-class (lieutenants); 8 veterinarians third-class (sub-lieutenants).

If veterinary service is so important in foreign armies it should not be less valuable in the army of the United States. If the humane sentiment in the countries mentioned sanctions such an elaborate organization to provide proper care and treatment for animals, should not the United States take an equally advanced position in this respect? In my judgment it should, and no better or more fitting time could be found than now.

The efficiency of an army in the field does and must depend upon the health and strength of its force, and the health and strength of the troop and battery animals are as important as that of the men. To be certain of the efficiency of army animals is most essential.

Of first importance in this regard is that animals purchased for army service should be inspected, before acceptance, by men who are in every way competent to inspect, and the graduate professional veterinarian is the one who alone can and does fill this requirement. Next is the proper care of the health of these animals after they have become the property of the Government, and again there is but one who can be charged with this responsibility—the veterinarian. Not alone are we to be benefited by the incorporation of this corps into our army because of what it will do in the selection and care of animals necessary to its organization, but as well will this corps be most valuable in the inspection of flesh food for our troops. It is the veterinarian who, by reason of his educa-

* This grade recently created.

tion and experience, is best able to pass upon the fitness of animal food for our army.

I venture the assertion that had we had a properly and well-organized veterinary corps during the late war with Spain upon which had rested the responsibility for the selection and care of army animals and inspection of meat for our soldiers, many thousands of dollars would have been saved to the Government and the deplorable condition now existing in the War Department would never have been. The necessity for such a corps does to me seem apparent when the value of army animals is taken into consideration.

During the period of five months, viz., from April 1 to September 1, 1898, the cost to the Government for horses and mules for all branches of the service was little short of \$4,000,000.

The following extract from the report of the Legislative Committee of the American Veterinary Medical Association I desire to read :

“ The proper selection and care of the horses, mules, and other animals in the cavalry, artillery, and transportation service and of those taken to be slaughtered for subsistence is a very important consideration, and upon it must depend to a large extent the efficiency and success of the army.

“ Horses should be selected with a view to proper size and conformation for the service in which they are to be used ; they should be free from lameness and other forms of unsoundness, the mares should not be pregnant, and all animals should be specially examined for contagious diseases. These points can only be determined by a competent veterinarian. They would be passed upon most carefully by an official with rank and responsibility, who would be held to a proper accountability for the condition of the animals.

“ When horses and mules in the service are injured or become lame it is important that they should be skillfully treated. If contagious diseases, such as glanders, break out, the proper measures should be at once taken to prevent the spread of the contagion and to stamp it out. Such measures can be intelligently formulated and enforced by expert veterinarians only.

“ The provision in the bill for two veterinarians with the rank of second lieutenant mounted for each cavalry regiment makes the position of such veterinarians more agreeable, and will have a tendency to secure better men and to give them some standing and authority. But it should be understood that this does not provide an adequate veterinary service. It leaves the artillery, the transportation service, the inspection of public animals, and the military schools without military veterinarians. It also fails to provide veterinary advice for the War Department or the headquarters of the army. Surely there should be at least one veterinarian of greater ability and experience than can be obtained for the pay of a second lieutenant who can advise as to the medicines, instruments, regulations, and orders to be issued to the veterinarians in the several regiments. There should be some one with the most expert knowledge to see that the regulations are carried out and that contagious diseases are properly guarded against and suppressed. The experience of the past summer should be sufficient demonstration of this fact.

In 1890 Dr. R. S. Huidekoper, of Philadelphia, Pa., late chief medical director, first army corps, in an address before the students of the veteri-

nary department of the University of Pennsylvania, on this subject, said :

“ In Prussia the veterinarians enter the army as non-commissioned officers, and after two years receive the commission of lieutenant ; but it must be remembered that the army surgeon in the same country only became a commissioned officer in 1845. It is estimated that the cost of the veterinary service in the German army is only one-twentieth of the value of what it saves. In all other civilized countries except the United States the veterinarian enters as a lieutenant and may be promoted to the rank of colonel. In France the veterinarians became officers, with a definitely organized corps, in 1843. During the several years previous to this the loss of horses in the French army was from 80 to 85 per 1000 ; in 1845 it fell to 77 per 1000. In 1852 the service was improved by increase of pay, pension and retirement, securing better veterinarians, and the annual loss fell to 67 per 1000. In 1860 considerably increased pay again attracted better men, and the loss fell to 28 per 1000.”

Dr. Schwartzkopf, in speaking of the present army veterinarians, said :

“ If we now review the professional position of the veterinary surgeon we find that he has but little support in regard to his duties and privileges. Very little is said about it in the army regulations and cavalry tactics, and this with open cautiousness. This puts the veterinary surgeon in a doubtful place, and his position is dependent by favor or disfavor of his commanding officer and his special orders in regard to veterinary matters. No office or veterinary hospital is given him ; he is compelled to go to the different stables for the treatment of the sick animals.

“ The gathering together and carrying of implements from one stable to another in special cases causes trouble and delay, and much treatment must be omitted for want of proper medicine, instruments, and any arrangement for certain diseases. The veterinary surgeon gets but little willing assistance from the farrier and shoeing smith, who logically should be his subordinates ; but he has no authority over them, his instructions are carelessly executed, and his orders in the treatment and shoeing of horses often changed by others in authority, who measure their competence to indulge in the practice of scientific medicine among horses by virtue of their rank, which the veterinary surgeon does not possess.

“ Now, the responsibility of the troop commander over his horses under treatment of a veterinary surgeon is a great drawback, as it prevents the latter from using his judgment and energies in critical cases, for it is almost certain that a difference of opinion may exist, and all exact knowledge and practice gained by years of studying in colleges and universities goes to naught by reason of prejudice and superstition. But cavalry tactics require of officers that they shall be able to treat all ordinary cases of injury and disease in horses. This is exactly the point in view one hundred years ago, but to-day is an absurdity. The only competent authority to treat disease in horses is the veterinary surgeon, and he alone should be responsible for the proper medical treatment.

“ But the general rules of the hygienic care of horses in their natu-

ral condition, the knowledge of hippology, should be well known to every cavalry officer. To be a good horseman is a necessary qualification of a cavalry officer, and gives him a wide field of studies, as hippology contains the history of the horse, the history of the art of breeding, training, saddling, riding; also the sanitary care and economy of the horses in regard to the principles and practice of stabling, feeding, watering, grooming, and finally the knowledge of the exterior conformation of the horse on a general anatomical basis, with the view of proper judgment for the purchase of horses to the different branches of the service. But quite separate from modern hippology is veterinary medicine and surgery; that is absolutely a medical science of vast extent.

"It is a deplorable fact that the United States is far behind European nations in the matter of veterinary surgery. It is the only government in the world that does not make its army veterinarians commissioned officers. This defect must be apparent to every man who has had the slightest understanding of military matters. Contract veterinarians who have no official authority are as helpless as can be in the enforcement of orders.

"The present system can but bring to the service men of inferior abilities; and while there are many men in the service of much fitness, yet a veterinarian of high class can not seek government service where his authority can be questioned by the men in the ranks.

"Now, therefore, Mr. President, I hope that the amendments just read will be adopted for the reason that if reorganization of the army is to be had no more advanced step can be taken than one which will engraft on our army service a veterinary corps. I hold that the expense of the corps will be paid and money saved by its adoption.

"The losses to our government during the last war in horses by reason of a lack of proper medical care would support for years a veterinary corps as provided in these amendments."

The following are extracts from the report of a special committee of the American Veterinary Medical Association:

"In France the veterinarian who enters the army on leaving one of the three Government schools enters the Cavalry School at Saumur and has a year's instruction in military education before being assigned to a regiment. In England and Italy it is the same; in Germany and Austria many of the veterinary students are soldiers before entering the schools, and have to serve a long probation as non-commissioned officers before their final examinations, when they become officers.

"We will not repeat what has been gone over in previous addresses and circulars of the necessity of a separate corps instead of the individual veterinarians as they are now attached to cavalry regiments. The necessity is obvious. The artillery and the transportation animals of the Quartermaster's and other departments must be provided for.

"The cadets at West Point should have a thorough course of instruction in hippology, so that when they receive their commissions as officers and become responsible for the horses of a troop of cavalry or a battery of light artillery they should know something—as much as a layman can commence with—of the conformation of a horse, its physiology, stable hygiene, nutrient value of forage, and last, but not least, the care of the foot and shoeing.

"The cavalry and artillery schools at Forts Riley and Leavenworth

should have more advanced instruction for both officers and men, and at these posts there should be perfected schools of farriery, where every horseshoer in the army should receive in turn a minute, detailed course on the anatomy of the horse's foot, and a supervised term of practical application of the horseshoe. The cattle, bought for butchering for food for the army, should be inspected by army veterinarians who are known to be competent and responsible. The meat furnished to the army should be inspected by the same officers, who by education are the trained experts for such work. The forage fed to the army horse and mule should be inspected by the veterinarian, whose college education in botany and chemistry has fitted him for it.

"Every board of officers appointed for the purchase of horses should have as one member an army veterinarian, an expert, trained in the details of faulty conformation and in the diagnosis of disease which will escape the observation of the cavalry or artillery officer, though the latter may, by long experience, be infinitely the superior and better expert in selecting the type of animal wanted for draught or saddle. While the professional veterinary work in any of these details can be performed by the employment of a civil veterinarian, as has been the custom in the Quartermaster's Department and at many of the cavalry and artillery posts, this method is not satisfactory. It is more expensive, and the civil veterinarian is not responsible for the work beyond the moment of its performance. The employment and position of the veterinarian as provided for by the last Congress is little better. There has been gained the assurance of the employment of a better class of men by the requirement of the examination; that is about all. The cavalry only is provided for, and the veterinarian is responsible only to the troop commander under whom he serves.

"What is needed for an efficient service on the level with that of all other civilized countries is a corps, with the chief responsible directly to the head of the army, as are the Quartermaster-General, Surgeon-General, Chief Signal Officer, and others.

"From the purchase of any horse or mule, cattle for the soldier's ration, or forage for the animals, a record should be forwarded through veterinary channels, so that, on the complaint of any troop or battery commander or commissary of subsistence through their channels, the chief veterinarian can locate the justice or error in the complaint. With a corps the chief will see that the veterinarians are equipped with proper supplies for performing their professional work; he will be informed of the individual qualities of the personnel, and will be able to make the best selection of the individual veterinary officers for service, with troops in the field, at posts where instruction is required, and for details for boards of purchase and condemnation, and for scientific investigation of contagious diseases. The reports of the veterinarian on the condition of the animals for whose health he is responsible will coincide with the efficiency of the horses of a given command, or will furnish the information needed by the general commanding the army to explain inefficiency of any troop or battery.

"Rank—the position of a commissioned officer—is a necessity to secure the services of a class of men who will be and will know themselves to be gentlemen, and who will have an *esprit de corps* which will compensate them like other army officers for the expenditure of intelli-

gence and hard work far beyond that given in civil life for the money remuneration which an officer receives.

“ From the point of view of military service it is indispensable that the Chief of the Veterinary Service should have the grade of the chief of the regiments whom he is expected to advise.

* * * * *

“ Your committee has endeavored in its work to show the importance of having an organized veterinary service which should extend to the artillery and Quartermaster's Department as well as to the cavalry. It has also tried to make plain the fact that a few veterinarians holding inferior positions in the cavalry regiments, necessarily scattered over the country, having no connection with each other and without means of concerted action, could not be expected to meet the more serious veterinary problems with which the War Department is often confronted. Such veterinarians in the past have reported that they could neither obtain proper medicines nor instruments; that they had no authority to cause the treatment which they prescribed to be carried into effect; that not being consulted in the purchase of horses, animals with contagious diseases were often introduced, and much damage was frequently caused before the contagion could be controlled.

“ The present veterinary service of the army is undoubtedly a disgrace to an enlightened and progressive country. It is a service which, to accomplish anything, must be able to carry its directions into effect, and yet it is without rank or authority; it is a service which requires instruments and supplies of a special character, and detailed instructions as to the manner of meeting the various emergencies which are liable to arise, and yet it is without a head; the veterinarian must endure all the hardships and face all the dangers of the service, and yet neither he nor his family have any prospects of a pension in case of disability or death in the service.

“ The result of this anomalous condition of affairs was very apparent in the course of our short war with Spain. The Government corrals became hot beds for the production and dissemination of glanders, and the efforts to check this disease were in some cases so crude that they might provoke a smile of derision on the countenance of our enemies, but could only bring a blush of shame and indignation to the face of a humane American citizen. At one place in Florida weeks of time were spent in testing the animals with mallein, and yet horses which showed unmistakable symptoms of glanders upon the most superficial examination were not separated from the healthy ones, and nose-bags were used indiscriminately. Injured and sick horses went without treatment because the veterinarians lacked medicines, instruments, instructions, and authority. There is little excuse for such a condition of affairs. While this is a rich country, and the loss of a few millions more or less on horses does not affect us seriously, it is, nevertheless, a humane country, and our people are not disposed to tolerate unnecessary suffering and cruelty to animals either by individuals or by the Government. The fact is the Government, through its various departments, should set an example of what is required in this civilized age in the way of intelligent and humane treatment of the animals which it controls. To accomplish this the army veterinary service needs to be reorganized; it needs a head. With the present service

there can at the best be but such practice as can be conducted under unfavorable conditions by veterinarians who are willing to take positions with the pay of second lieutenants; but, with one experienced and really capable man at the head the entire service could be brought approximately to his level."

These quotations from statements of able men who have made a study of the subject are believed to be sufficient to establish the importance of action for the creation of a veterinary corps in the army. We, therefore, urge all persons to co-operate with us who are interested in increasing the efficiency of the army, and in giving our brave soldiers the advantages of good and prompt transportation; all whose humane sentiments convince them that the sufferings of the army horse should be reduced to a minimum, and all who believe that the veterinary profession should receive the same encouragement and be shown the same respect in the United States Army as is freely accorded in the armies of other countries.

D. E. SALMON,

R. S. HUIDEKOPER,

M. STALKER,

W. HORACE HOSKINS,

A. W. CLEMENT,

Committee on Army Legislation.

THE BUREAU OF ANIMAL INDUSTRY.

SUMMARY OF THE ANNUAL REPORT OF DR. D. E. SALMON, CHIEF.

The annual report of Dr. D. E. Salmon, Chief of the Bureau of Animal Industry, shows that during the past year cattle, sheep, calves and hogs and their products were inspected at 138 abattoirs and packing-houses in forty-one cities, this being an increase of three abattoirs and six cities over the previous year. At twelve cities, including Chicago, the inspection before slaughter was made in the stock-yards and included animals purchased by miscellaneous buyers and those for shipment to other cities, as well as those for local official abattoirs. The inspection of horses was conducted at one abattoir only, that at Portland, Ore. During the year 53,223,176 animals were inspected before slaughter, and of these 6676 were rejected at abattoirs and 150,863 were rejected at stock-yards. Dr. Salmon points out that the rigidity of the *ante-mortem* inspection is evidenced by the fact that upon examination at slaughter much the greater number of carcasses are pronounced fit for food. Many of the animals rejected in the stock-yards were pregnant, but these were allowed to be shipped for feeding and dairy purposes.

The following statement taken from the report shows the number of *ante-mortem* inspections for the fiscal year 1899.

KINDS OF ANIMALS.	<i>For official abattoirs in cities where inspections were made.</i>	<i>For abattoirs in other cities and miscellaneous buyers.</i>	<i>Total Inspections.</i>	<i>Rejected at abattoirs.</i>	<i>Rejected in stock-yards.</i>
Cattle	4,654,832	4,288,562	8,943,404	180	26,593
Sheep	5,718,464	3,819,920	9,538,384	476	18,150
Calves	245,859	253,404	499,263	41	3,128
Hogs	23,783,576	10,455,317	34,238,893	4,942	102,992
Horses	3,232	. . . .	3,232	37	. . . .
Total	34,405,973	18,817,203	53,223,176	5,676	150,863

It is found upon comparison that this work of the bureau has progressed each year since 1896.

The number of animals inspected at time of slaughter and the number of carcasses and parts of carcasses condemned and rendered so as to unfit them for consumption as food are given in the following table:

KINDS OF ANIMALS.	NUMBER OF INSPECTIONS.			CARCASSES CONDEMNED.			<i>Parts of carcasses condemned at abattoirs.</i>
	<i>For official abattoirs.</i>	<i>On animals rejected in stock-yards.</i>	<i>Total</i>	<i>For official abattoirs</i>	<i>Animals rejected in stock-yards.</i>	<i>Total . .</i>	
Cattle .	4,382,020	16,726	4,398,746	6,404	3,219	9,623	10,514
Sheep .	5,603,096	6,023	5,609,119	3,369	1,476	4,845	359
Calves .	246,184	935	247,119	199	105	304	45
Hogs .	23,836,943	67,996	23,904,939	48,897	6,122	55,019	29,143
Horses .	3,232	. . . .	3,232	181	. . . .	181	. . . .
Total.	34,071,475	91,680	34,163,155	59,050	10,922	69,972	40,061

In addition to the condemnations upon regular inspection as above there were 41,597 carcasses of hogs condemned upon microscopic examination for trichinæ. In accordance with the regulations about half of the meat from these carcasses was cooked, the rest being tanked.

<i>Manner of death.</i>	<i>Cattle.</i>	<i>Sheep.</i>	<i>Calves.</i>	<i>Hogs.</i>	<i>Horses.</i>	<i>Total.</i>
Dead at abattoirs	235	1,050	36	19,424	43	20,797
Died in stock-yards . . .	309	1,121	105	2,201	.	3,736
Killed in stock-yards . .	1,206	784	176	21,274	.	23,530
Total	1,750	2,955	317	42,899	43	48,063

The above table shows the number of animals that died

of disease or injury or were killed by city inspectors after rejection in the stock-yards, and the number found dead in cars or pens at abattoirs and tanked.

The meat-inspection tag or brand was affixed to 14,919,664 quarter and 217,920 pieces of beef, 5,522,142 carcasses of sheep, 225,348 carcasses of calves, 932,878 carcasses of hogs and 551,331 sacks of pork.

The number of packages stamped during the year comprised 4,840,834 of beef products, 9417 of mutton, 12,545,965 of hog products and 763 of horseflesh. Included in the packages of hog products were 393,838 packages containing meat that had been microscopically examined in addition to the regular inspection. There were 47,455 cars sealed which contained inspected meat for shipment to packing-houses and other places.

During the year there were 42,237 certificates issued for meat products regularly inspected, exclusive of horseflesh. The exports thus certified consisted of 1,428,290 quarters, 45,789 pieces and 837,634 packages of beef weighing 360,843,856 lbs.; 9417 packages of mutton weighing 525,705 lbs., 199,505 carcasses and 880,324 packages of pork weighing 278,695,535 lbs. Fourteen certificates were issued for 763 packages of horseflesh weighing 347,048 lbs. The cost of this part of the work of the inspection division was \$465,709 making an average of 0.88 cent for each of the 53,223,176 *ante-mortem* inspections. In 1893 the average cost of inspection was 4.75 cents and in 1894 1.75 cents and in 1898 0.80 cent.

The bureau microscopically inspected 2,227,740 carcasses of pork, of which 2,160,230 or 96 per cent. were free from all appearance of trichinæ; 25,913, or 1.16 per cent., contained trichinæ-like bodies or disintegrated trichinæ, and 41,597 carcasses, or 1.87 per cent. contained living trichinæ. The number of certificates issued for microscopically examined pork products was 22,708. The number of packages exported was 393,626, weighing 108,928,195 lbs. Of this quantity 137 packages weighing 70,046 lbs. went to countries not requiring a certificate of microscopic inspection. The cost of the microscopic inspection was \$198,355, an average of 8.9 cents for each carcass examined and 0.182 cent for each pound exported. There was some increase in this cost over last year, owing to the necessity of increasing the force in order to maintain a more careful control of the stock of microscopic meats and of the cellars containing it, and to a more accurate system of

charging employees to different accounts according to the kind of work performed.

There was a decided decrease during the year in the number of domestic animals exported to Europe. During the year of the 643,301 head of American cattle inspected for export 1593 were rejected, 327,741 tagged and 311,595 exported, 14,786 of the number going from Chicago via Canadian ports. Of the 174,717 sheep inspected 118 were rejected and 98,551 exported, 4757 going from Chicago by Canadian ports; 26,351 horses and 98 hogs were exported. Of Canadian cattle inspected only 9 were rejected and 27,797 exported; Canadian sheep 37,274 inspected, 41 rejected and 37,206 exported. There were 2685 Canadian horses exported. Certificates were issued for 1201 American cattle, and 852 vessels carrying live stock were inspected. In the trade between the United States, London, Liverpool and Glasgow 294,318 American cattle were landed and 911 lost, and 24,295 Canadian cattle landed and 504 lost. The wrecking of a ship caused the loss of 366 Canadian cattle. Of American sheep 97,659 were landed, 1526 lost, and 34,003 Canadian sheep landed and 1639 lost. Of American horses 20,035 were landed and 224 lost, and Canadian horses 1808 landed and 5 lost. The expense of inspection of animals for export, the supervision of the movement of Southern cattle and the inspection of animals imported from Mexico amounted to \$107,023.

During the quarantine season of 1898 32,937 cars, containing 911,455 cattle from the area infected with splenic fever of cattle, were unloaded in the quarantine division of the stockyards at different points and 33,814 cars were cleaned and disinfected. In the non-infected district of Texas, 236,369 cattle were inspected and permitted to be removed to other states for grazing. In California 37,832 cattle were inspected prior to shipment to points outside the infected district. During the year 145,974 sheep infected with scabbies and 526,970 sheep exposed to the contagion were dipped for shipment in interstate trade. The bureau also inspected 79,908 head of cattle, 1254 sheep, 64 swine and 121 goats from Mexico, and 90,468 cattle from Canada, 172,985 sheep, 1769 horses, 194 hogs, 1 moose, 1 goat and 11 mules. Of these 425 cattle, 6581 sheep and 176 hogs were for breeding purposes. None of these Canadian animals were subject to quarantine. Of the animals imported and quarantined 1562 were cattle, 840 sheep and 49 hogs and 12 camels.

In reviewing the work of the pathological division Dr. Salmon emphasizes the report of Dr. V. A. Norgaard, its chief, who estimates that the annual loss of cattle from blackleg in the districts principally affected has ranged in years when the disease was most prevalent from 5 to 35 per cent. The estimated loss after inoculation with the bureau vaccine was 0.54 per cent inoculated, or a little more than one-half of 1 per cent. This loss could have been further reduced had the operators been familiar with the work of vaccination, and reports show that a number of losses were caused by failure to follow instructions carefully.

While marked success has attended the treatment of hog cholera and swine plague with antitoxic serum, and experiments are being further conducted along that line, the bureau has not abandoned its efforts to find a method by which the two important diseases can be treated successfully without the intervention of a serum animal.

Dr. Salmon recommends as improvements in the bureau's work during the next year an increase in the meat inspection force; that measures be rigidly enforced for the exclusion of sheep affected with scab; that the distribution of blackleg vaccine be continued to determine its efficacy; that a special effort be made to instruct representatives of the State experiment stations in the manufacture and use of the anti toxin for hog cholera and swine plague; that the Texas fever regulations be amended so as to prevent the movement of tick-infested cattle to the non-infected regions immediately above the quarantine line at any time of the year; that the experiments in dipping cattle with a view of destroying the ticks be continued; that pure-bred cattle imported into the United States for dairy or breeding purposes be tested with tuberculin, and that those which react upon this test be rejected; the disinfection of hides to guard against the importation of the various forms of contagion which affect cattle, and particularly that of anthrax; that the provision for developing and extending foreign markets for dairy products be continued; and that the recommendations already made for necessary legislation to extend the existing system of government inspection and certification of meats and meat products for export so as to include butter, cheese and condensed milk and cream for export be pressed upon the attention of Congress.—(*Breeder's Gazette*.)

GET your brother veterinarian to subscribe for the REVIEW.

BIBLIOGRAPHY.

GUIDE TO PRACTICAL MEAT INSPECTION, including Examination for Trichina. By Dr. F. Fiscoeder, Bromberg, Germany. Translated, with Annotations, by A. T. Peters, D. V. M., University of Nebraska. Chicago: Alex. Eger, 34 East Van Buren St.

The subject of meat inspection has become one of great practical importance to the American veterinarian, and every school which pretends to give instruction in the advanced science must have a chair devoted exclusively to this branch of veterinary education. Those who graduated prior to the introduction of that department, and whose duties call upon them for a knowledge of its principles and practice have found it difficult to secure a text-book of reliable and accurate data. True, we have had some works on the subject, but they are meagre and little adapted to the needs of inspection in the large abattoirs of this country. While the work by Fiscoeder is foreign in the same sense, its translator is among our brightest men in that branch of veterinary science, and he has succeeded in the work of expungment and addition so well as to make of the text a thoroughly up-to-date and practical guide to meat inspection as it is found in the United States at the present time. Dr. Peters is so modest in his prefatory remarks that he makes no claim of a complete scientific discussion, and states that the technicalities which burden most German medical writings have been studiously avoided. He has omitted all German laws, which are radically different from our own, and has substituted the United States meat inspection regulations and instructions to inspectors. The volume consists of 236 pages, divided into eighteen sections, as follows: (1) object of meat inspection and meat inspectors; (2) construction and functions of the animal body; (3) sex and age of the animal; (4) the normal characters of the organ; (5) rules and regulations for the inspection of live stock and their products; (6) general instructions to inspectors and other employes of the Bureau of Animal Industry; (7) instructions to meat inspectors; (8) United States Bureau of Animal Industry; (9 and 10) contagious diseases; (11) diseases caused by vegetable parasites; (12) diseases caused by animal parasites; (13) pathological changes of the blood; (14) poisoning; (15) pathological changes which may be seen in all parts of the body; (16) important condition and surroundings; (17) pathological changes which first manifest themselves on the flesh after slaughter; (18) examinations for trichina. The work is illustrated with 46 figures and 14 plates.

We welcome to the American veterinary library this valuable contribution, which does much credit to the translator, who has so completely rewritten the book as to be its real author, and whose reputation for accurate information upon all branches of the subject of meat inspection is so well founded as to give the new volume a place at once among our standard works.

By its publication Mr. Alex. Eger steps into the arena as a publisher of more pretentious veterinary literature, and we are pleased to note that his first effort does his house much credit, since he has not spared time nor money to make it worthy of its contents. Other works are announced as in course of preparation, and we bespeak for the present volume a patronage which shall encourage both author and publisher.

PATHOLOGICAL AND SURGICAL STUDIES—EXPERIMENTAL RESEARCHES (Etudes de Pathologie et de Clinique—Recherches Experimentales). By Prof. P. J. Cadiot.

We do not know if the example laid down by Prof. Cadiot is followed by many of the teachers in the various veterinary schools of the world, but we know that in America it is not. To gather observations of interest in various subjects, classify them and publish them is certainly a work which must be of great advantage to all; and, instead of remaining satisfied with the simple publication of a case, of a surgical operation, now and then, Prof. Cadiot has preferred collecting them in one book, and it is under this form that he offers the profession of the work done by him, or under his supervision, during the year ending October, 1898. The statistics which are at the beginning of the book tell not only of the general advantages that the clinics of the Alfort School offer to students but also of the amount of work done by one professor in that department; 9692 animals came under Prof. Cadiot during the year of 1897-98, and among those 1306 operations performed. The book then enters into the description of the subjects, and after a chapter giving the statistics, others follow on pathological and surgical clinics, pathological and medical clinics, the publication of numerous clinical records divided by regions, infectious diseases, experimental and comparative pathology, experimental therapeutics.

In the 600 pages that the book contains the reader will find lots of material for thinking, records of most interesting cases, valuable didactic lectures, etc., etc. There are 65 figures and 4 colored plates illustrating the text. The well-known French house of Asselin & Houzeau is the publisher.

By this addition to his already extensive contributions to veterinary literature, Prof. Cadiot has certainly produced one of the most practical sources from which the daily practitioner can gain information.

CORRESPONDENCE.

WHAT HAPPENED TO THE ASSOCIATION OF FACULTIES.

CHICAGO, Ill., December 15, 1899.

Editors American Veterinary Review:

DEAR SIRS:—"What has become of the Association of Faculties," asks Prof. Dr. Schwarzkopf in a recent number of the AMERICAN VETERINARY REVIEW. I have a guilty suspicion that the question was aimed at the officers of that organization, which, by the way, is now called "The Association of Veterinary Faculties and Examining Boards of North America." If not, its answer at least should emanate from them. If the question had been "Why was there no meeting in 1899?" I might readily have answered "Because there were no officers present to call such a meeting, and especially because I, the Secretary-Treasurer, neglected to send the minutes, programmes, account books, etc., to the place of meeting." To be more explicit, I might express myself in the language of General White in his report of the famous mule stampede at the battle of Dundee, "I alone am responsible." And I beg to assure the members of the association that I use the expression with the same sincerity and earnestness as the General did. But on the other hand, if the association is entirely lost, as the query implies, then, in justice to myself, I shall agree to share only a part of the responsibility.

At the Omaha meeting, Dr. Stalker and myself were intrusted with the two executive offices, and owing to the painful fact that neither of us "showed our faces" at the New York meeting, we clearly deserve the severest censure. We stand indicted for gross malfeasance and (I cannot plead for Stalker), plead guilty, guilty, guilty.

I worked with some earnestness during the summer at the difficult task of securing a literary programme for the New York meeting, and I received encouraging replies from such faithful workers as Law, Harger, Williams, Pearson, Robinson, and many others. All were of the opinion, in regard to the future of the society, that its original aim could never be consummated, and that the next few meetings at least should be devoted to the

amelioration of teachers as individuals instead of that of the colleges as a whole. That is to say, the sentiment of transforming the society into a teachers' institute was freely expressed. I found it impossible to attend the meeting—a circumstance I very much regret, but I expected to send the association's property to New York with Dr. Stalker when he passed through Chicago en route to the meeting. Although he had once during the summer expressed some doubt as to his ability to attend, I did not for one moment doubt that he would be there to preside. In this I erred, and when the error was realized it was too late to send the books.

This circumstance should not, however, materially affect the future of the institution, and if it has received its death-blow from this circumstance the prognosis must have been unfavorable any way. I trust I am not too optimistic when I see in the masterly address of Law, the scholarly essay of Harger, the lucid, instructive discussion of Williams, and the paper of Clement on "State Examinations," the foundation of a useful and progressive Veterinary Teachers' Institute (See An. Rpt. Am. V. M. A., 1899.) Let us hope that such an organization will be born of the obsolete one. So far as the "Examining Board contingent" is concerned there need be no impediment, as the relations between the teacher and examiner must always be a close one.

Unless lawfully impeached, I shall act under the constitutional clause that compels officers to retain their seats until their successors are duly inaugurated. Discussions through these columns are solicited.

L. A. MERILLAT,
Secretary-Treasurer.

SOCIETY MEETINGS.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

(Continued from page 676.)

Dr. J. A. Sloan then presented the following paper on
COUNTER-IRRITANTS.

A counter-irritant is a drug or process by means of which an irritation is produced in one or more parts of the body with the view of relieving one already existing in another part and for the purpose of strengthening some part or to hasten the reparative process of some part. As a remedial process it occupies a

great and useful sphere in veterinary practice. Their use in human medicine is of great antiquity, for they were mentioned by ancient writers on medicine, but there are few of our people to-day who would consent to be "marked" with a hot iron for the alleviation of pain or the cure of disease. True, the hot iron is still used as a counter-irritant, but only to promote a slight congestion of the skin, and when so used, is first heated in boiling water and then lightly applied, or if heated to a red-heat, the iron is slowly waved back and forth near the skin.

Counter-irritants are commonly divided into two classes, internal and external. Internal counter-irritants are known as revulsives or derivatives, and may be defined as remedies "which, by producing a modified action in some organ or tissue, derives from the morbid condition of some other organ or tissue." A very familiar example is the administration of a drastic purgative to relieve active cerebral hyperæmia or a powerful diuretic to deplete the system in dropsical conditions. External counter-irritants are those which are used upon the surface of the body and is the more common use. These only will be considered as within the scope of this article. They may be defined as "substances used externally to produce a reflex influence on a part more or less remote from the site of application." It is true that these drugs are sometimes directly applied to the part to be relieved or strengthened, but as the subject of counter-irritants is too extensive to be discussed in all of its phases, we will omit this one as of minor importance.

This second class is again divided according to severity of action: (I) Those of mild action or rubefacients, which only cause a congestion of the skin. If their action is continued, they may become vesicants, in which vesicles or blisters are formed. This is an exudate or outpouring of serum into the lower layers of the epithelium and liquefaction of epithelial cells beneath the horny layer, which causes vesicles to appear to be between the epidermis and derma. If contact is still continued, a third subdivision is reached called escharotics, involving destruction of all tissues to which the irritant is applied and the formation of a slough. A fourth subdivision, still more severe in action, is pustulants, which give rise to pustules on the parts to which they are applied, as the orifices of the cutaneous glands. A fifth subdivision is setons and rowels, which are inserted through openings in the skin or the injection of an irritant substance beneath the skin, and are used to set up a deep-seated, long-continued and extensive inflammation.

Another classification is (1) those used externally for the cure of internal diseases. These cure by revulsion, relieve pain, produce diaphoresis and arrest forming disease. The counter-irritants commonly used to produce these effects are hot applications, cantharides and liniments; (2) those used in the treatment of lamenesses, etc. These promote a cure by increasing the activity of the superficial parts and of the circulation. They tend to destroy the elasticity of the skin, because of a decided thickening, and prevent the use of the leg or obstruct motion because of the soreness of the skin. They also, when not too severe, cause hyperæmia of the superficial parts and anæmia of the deeper structures, but when severe the inflammation becomes deep-seated, which is proven by the fact that an increased amount of fibrous tissue has been found in the deeper parts of a leg years after the application of a severe blister or firing iron. Again, when animals are treated, they are given a rest from work, which is often an aid in curing the disease. The counter-irritants commonly used in the order of their importance are, cantharides, mercuric iodide or biniodide, actual cautery, setons and liniments.

To make cantharides blister, take eight parts of lard or vaseline, heat to 120° Fahr., and stir in one part of the pulverized cantharides. As excessive heat tends to destroy the active principle, or cantharidin, a complex animal substance easily broken up into simpler compounds; the vehicle should not be heated very hot. If applied over a very large surface, a proportion of 1-16 is sufficiently strong, and even then it causes irritation of the kidneys and excessive diuresis, which may continue for a week.

Biniodide of mercury is also mixed with lard or vaseline in a proportion of 1 part to 4, 6 or 8. It is indicated in such cases as require a more severe treatment than fly blister, and will diminish enlargements of soft and hard structures. These two blisters, or the so-called mixed blister, should never be used together, for the action of cantharides is quicker and the exudate it causes washes off the biniodide before it has been absorbed, thereby causing a loss of material. Sometimes a little of the biniodide may be used every night until the skin is blistered, when it should be stopped until the skin heals.

In ordinary firing, line firing is preferable, and if neatly done need not "mark" an animal much more than point firing. If the client objects to the patient being marked, fire lightly and apply a strong blister, but if no objection is made, it is better to

fire well and apply a light blister. In either case, after two days shampoo with soap and warm water and grease with lard. Point firing is little better than a good blister, and while it may satisfy the scruples of a client, it does not begin to compare with a good line firing for effectiveness. The only advantage of firing over blisters is that the irritation thus set up is deeper seated, longer continued and more severe.

The technique of applying counter-irritants is briefly: clip the hair, because it in part protects the skin from the action of the drug. Brush the clipped surface thoroughly to get rid of dirt. The brushing also increases the activity of the skin, and consequently the rapidity of the absorption of the drug. Apply the blister, using only what the skin will absorb readily, and rub briskly with the hand for a few minutes. If the exudate is likely to run down to parts not treated, smear with vaseline to prevent loss of hair, for the exudate is itself an irritant and will set up an inflammation. Tie the patient short by backing in a stall for about eight hours, by which time the severe pain will have passed off. For two days tie the patient so that he cannot lie down or in any way spread the blister to other parts. Then shampoo thoroughly the parts treated with castile soap and warm water for half an hour, dry and smear with lard. Apply the lard daily for three days, shampoo again, and continue this treatment for ten days, when all the scabs will be removed and no more formed. The patient will be ready for work on the fourteenth day, or may be turned out to grass in season. If it is necessary to get the patient to work as soon as possible, apply a more severe treatment than would otherwise be necessary, and after two days decrease and limit the action of the irritant by the continual application of hot stupes. This treatment should be begun immediately after the first shampooing. The stupes may be wetted with an astringent solution to hasten the process. By this treatment the scabs may all be removed and the patient ready for work in eight days or ten from the application of the blister. It is necessary to exercise care and judgment in the application of counter-irritants to obtain the "golden mean" of the right amount of inflammation and avoid all danger of sloughing. This is obtained by experience and quick perception of the peculiarities of the patient. In treating lamenesses it is not always desirable to induce the formation of a thick scab by the application of a blister. To recapitulate: If it is necessary to produce considerable and continued inflammation, use the actual cautery, and if a lesser amount of irritation

will produce the desired effect, use a blister, but in either case in two days after the application curative measures should be adopted to reduce or check this superficial inflammation, instead of allowing the formation of a thick scab, which will require two or three weeks to slough off. All that should be required of a blister is to set up an inflammation which will increase the activity of the parts and either relieve the morbid condition and hasten repair or hurry the inflammatory action to a natural termination as seen in ankylosis. When repair is aided the curative action is due to an increased activity of the circulation, the elimination and absorption of morbid products and the restoration of the natural functions. When the morbid process terminates in ankylosis, the increased circulation aids in the formation of new tissues and its final calcification.

DISCUSSION ON COUNTER-IRRITANTS.

Dr. Stewart: In opening this discussion I must congratulate the essayist upon his happy condensation of so broad a subject into concise statements, and especially the clearness with which he has given the technique of application of the counter-irritants in diseases of the extremities. It is perhaps in this field more than any other that counter-irritants are employed. The paper does not deal particularly with the application of counter-irritants for the relief of internal diseases, yet it is probable that this was the original use for this class of agents. They were used for the relief of pain of a neuralgic character, as well as the results of inflammation, particularly in pleurisy. The paper does not exhaustively deal with the theories as to how counter-irritants produce their effect. It is held by some that the pain the irritation produces on the surface of the body at one point will lessen the arterial injection and nerve sensibility in some other part of the body, and it is this peculiar power which indicates their employment. It is a matter of common record that in cases of pleurisy in the first or dry stage, a sharp irritant applied over the chest wall is promptly followed by relief of the pain, and sometimes by the entire subsidence of the disease processes. Professor Williams, of Edinburgh, is reported to have stated that counter-irritants were of little value to relieve pain or congestion or to modify chronic inflammations, and Findlay Dun records some experiments by Professor McCall which tend to show that powerful counter-irritation of the skin induces inflammation of the skin and subcutaneous tissues, but that perceptible changes do not occur in

the deeper parts. Many practitioners believe that a counter-irritant applied over the throat region will relieve the distress in acute pharyngitis and laryngitis, and it was my custom to apply a blister over enlarged lymphatic glands consequent upon an attack of strangles which did not suppurate in the usual length of time. The blister seemingly hastened suppuration and resolution. The essayist probably indicated the most important point in connection with the firing and blistering for relief of chronic inflammations, when he stated that a long rest was an important factor. It has been held by some good practitioners that rest alone, without the counter-irritation, would effect a cure. In relation to the comparative value of line firing and puncture firing, will say that with my limited experience the best results were obtained from the puncture firing, but it has been a question in my mind whether or not the good results were not due to the direct irritation of the deeper parts produced by the puncture, rather than from the cauterization of the skin, it being doubtful about producing cauterization in the deeper parts. Perhaps others will discuss this point more fully.

Dr. Moore : Relative to the choice between line firing and puncture firing, I will say that it has been my custom to employ the line firing where I desired to secure the influence of a counter-irritant in diseases of the soft parts, but in diseases of the bones I have preferred to use puncture firing. I am quite inclined to believe that by the puncturing of the periosteum, in cases of bony growths, such as spavins and ringbones, the tension on the periosteum is lessened, resulting in relief and cure. The essayist has indicated that the combination of cantharides and biniodide of mercury is a bad one, and as I have used this combination for several years with seemingly good results, I feel called upon to defend it. However, I would not employ these active agents in so large a proportion as indicated by the essayist. I use one dram of cantharides and one-half dram of mercuric iodide to the ounce of vaseline, and have found this a very reliable and certain blister. In no case have I found that the cantharides acted first and the serum produced washed off the slower acting mercury. While I am aware that oftentimes the cantharides on the market is very inferior in quality, and that failure to secure results from cantharides preparations may be fairly ascribed to this, I have sought to overcome this possible difficulty by combining the two agents in the same blister, and they have always acted admirably for me.

Dr. Milnes: There was one point in relation to the employment of the actual cautery which the essayist did not touch upon, which seems to me to be quite important, and that is the age of the animal to be fired. My experience has taught me that we should be very careful in firing young animals, such as weanlings and yearlings. They are very susceptible to the action of counter-irritants, and great damage may be done if they are not cautiously applied.

Dr. Ernst: I would like to ask the essayist his opinion as to whether in the application of the firing iron and blister over a spavin or ringbone, if he thinks that the inflammation is confined to the skin and subcutaneous tissues, or extends to the deeper parts.

Dr. Sloan: I believe it is possible to do a job of line firing that will extend clear to the bone. It is probable that killing the animal so early as the third day, in the experiments made by Dr. McCall, that the tissue changes in the deeper structures would not be noted, as proliferation of connective tissue cells would not take place so early. Had the animals lived longer, changes deeper down would doubtless have been noted.

Dr. Stewart: In the experiments alluded to the visible evidence of inflammation, such as congestion of vessels and exudate into the tissues, did not extend below the subcutaneous connective tissues. There was not observable any vascular changes in the deeper structures. I had hoped some one would take up the problem of modifying the circulation in the deeper parts by means of irritation of the surface. This is certainly quite an interesting phase of the application of counter-irritation. It is well known to general practitioners that the stimulation of the skin by moist heat determines increased circulation in this structure, which will relieve internal congestion. If an animal suffering from congestion of the lungs, or other internal organs, be wrapped in blankets wrung out of water as hot as the animal can bear, and then further covered with blankets and impervious covers, that the internal congestion will be promptly relieved. A like result may be obtained by a thorough friction of the surface with some stimulating liniment, and the body wrapped in blankets. I feel that this is quite an important phase of the application of counter-irritants, and one not so much employed as should be. A letter received from a party in Maine inquires if an injured leg is fired, whether the other corresponding limb, which is sound, should be also fired, and as it seems to be the custom to fire both

limbs if one is fired, will some one give a good reason for it?

Dr. Sloan : It has been my custom to fire or blister both limbs if I fire or blister one, so that the animal may be inclined to stand on both alike, as it is well known that laminitis may be developed if the weight is borne almost entirely on one limb.

Dr. Bennett : The horse owners of Kentucky have great faith in firing and blistering in diseases of the horse's limbs, and are quite heroic in their application, not caring particularly if there be some blemishing, so that the animal goes sound. I have had most excellent results with cantharides, and I prepare my blister by dissolving one dram of cantharides in six drams of olive oil, the material being heated over a water bath for half an hour, and stirred constantly. The active element may deposit a little, but it is readily incorporated again in the oil by stirring. I have employed this blister in cases of tumors of the withers, which you know terminate in fistulæ, and in other parts with most excellent results. As a blister to be applied over the joints and bony growths, I usually employ a mixture of red iodide of mercury and vaseline, one part to six. When I have used the firing iron I have also applied the cantharides blister to reinforce its action. It is quite important to rub the blister in thoroughly in order to secure the best results. The Germans are great advocates of firing, and of deep firing. I remember to have seen a case come into the hospital very lame from strain of the suspensory ligament, and he was fired very deep, almost into the ligaments, and a blister applied. In four days he was standing on the limb, and on the eighth day went out of the hospital sound.

Dr. Stewart : I wish to inquire if the last speaker would have us to understand that the horse simply went out free from lameness, or that the wounds from firing had also healed.

Dr. Bennett : The wound was not entirely healed, but the horse went perfectly sound.

Dr. Stewart : I believe it is important to emphasize the relation of the cantharides to the element in which it is prepared as a blister. The cantharadin or active principle is not freely soluble in vaseline, but is quite soluble in lard and oils, and for cantharides to be most active as a blister the cantharadin must be thoroughly dissolved. The parts to which it is applied should also be properly prepared, to get the best results. They should be clean and dry, water interfering with the action of the cantharidin. Vaseline is the best medium for

suspending and evenly subdividing the mercuric iodide, as it gravitates to the bottom in the lard or oil, and hence is unevenly distributed through the mixture.

Dr. Milnes: In making cantharides blister I made it a rule to buy the best quality of cantharides from a reliable house, and to make the ointment with what is known as simple cerate, dissolving the lard and wax over a water bath, and stirring in the cantharides and continuing to stir it occasionally for an hour or more until the cantharidin was dissolved. Some benzoin was added to prevent rancidity. This form of ointment was always solid and stable in all temperatures, and was a very reliable blister in my hands. I would like to ask Dr. Bennett if the olive oil preparation was not inclined to run over the parts below where applied.

Dr. Bennett: The olive oil makes a liquid blister, and I prefer the liquid blister to the blister in the form of ointment. The blister is thoroughly rubbed into the parts, and there is no excess to run upon the parts below. Of course I took precaution to anoint the structures below to prevent the discharges from the blisters from taking the hair off below the part where the blister was applied.

Dr. O. Verschelden then presented the following paper:

AN UNCLASSIFIED DISEASE FOLLOWING PARTURITION IN COWS.

Time and again has my attention been called to a certain disease of cattle, especially during the fall and winter 1897 and spring of 1898, when it prevailed as an enzoötic in my district. I have failed to see it mentioned in any works on cattle pathology at my disposal, and feel therefore justified in calling it "an unclassified disease," notwithstanding perhaps that many of you have met with it as well as myself; it is with that hope that I present this paper before you this evening. I will refrain from dealing with its probable etiology, leaving such to some of you who are perhaps better situated than I to study obscure diseases and go into original research. I will simply describe the symptoms as they present themselves to me, also my mode of treatment. I hope, however, of hearing the experience of others and to have by a thorough discussion more light thrown on this, to me at least, obscure disease.

It attacks cows of all ages and conditions in from three days to as many weeks after parturition. The first symptom usually noticed is a peculiar gait of the hind parts; the animal walks with the hind legs sideways, not unlike the trot of a dog; the general health at this stage is not much altered, perhaps a capri-

cious appetite with a trifle fever are all the symptoms; sometimes, especially if put under proper treatment at once, no graver symptoms are developed; but such is not always the case, but too frequently, in a day or two more, the symptoms are aggravated to an alarming extent; in so short a time the flesh seems to have melted from that body which was sleek and fat, the coat is rough and staring, the appetite is entirely gone, and with it rumination ceases, pulse is about 70 or 80, temperature two to three degrees elevated, fæces are covered with mucus and hard. What is peculiar in most cases is the surprising amount of milk yet secreted, considering the condition of the animal. In all cases which came under my observation the animal was able to get up without or with very little assistance; it would, however, have been an easy matter to push her over after she was up, so weak she was. The predominating symptoms are the incoördination of the hind parts and the rapid emaciation.

My mode of treatment consists in, first, administering a full dose of physic: Sulph. magnesia lb.j, gamboge $\bar{3}$ j, no matter how weak the patient is; this is followed by powders two or three times a days consisting of sodium bicarb., gentian radix pulv., $\bar{a}\bar{a}$ $\bar{3}$ js, and strychnia sulph. grs. iiij, combined or alternated in very bad cases with arsen. ac. grs. v. All of my cases so treated recovered in about ten days to two weeks, and once convalescence established gained quickly their former condition.

Now, what factor brings about these phenomena in the parturient cow? Has any one seen it in the non-parturient animal or in other females besides cows? These are questions which interest me very much, and I would like to hear you, gentlemen, on the subject.

DISCUSSION ON DR. VERSCHULDEN'S PAPER.

Dr. Moore: Dr. Verschelden's paper is certainly a very interesting one, and he has described a series of cases which are certainly not commonly met with, though possibly I may have seen some such. The symptoms are somewhat similar to those found in cases which I have met, and which I attributed to septic intoxication, but in the cases described the lesions were developed too long after parturition to be ascribed to septic infection. As you are aware, there often remains after parturition small portions of placenta in which putrefactive changes occur, producing a series of symptoms similar to those described, such as elevation of temperature, staggering gait, general weakness and rapid emaciation. The treatment employed in cases

described in the paper would be quite likely to be beneficial in cases of septic intoxication.

Dr. Bennett: I do not remember to have seen any cases like those described in the paper, and I should be pleased to hear what Dr. Verschelden thinks was the cause in his cases.

Dr. Verschelden: I have not been able to make a careful and satisfactory study of it. I have considered it a species of nervous disease, possibly resulting from stomach troubles. It does not seem possible that it was due to septic infection, as in many cases the deliveries were very easy and the membranes came away promptly. Some cases occurred as long as three weeks after very easy delivery, and one thing peculiar about it, there was a very small diminution of the milk supply, there were no vaginal discharges, and no straining. It is peculiar that these cases were all seen during the fall of 1897 and spring of 1898. Fully fifty per cent. of the cows in St. Mary's, where I practice, suffered from the malady. I did not see any cases in the country. My treatment, as you will note, was nerve stimulant and tonic.

Dr. Wright: Dr. Verschelden asks if any of us have seen similar cases. I will say that I saw something similar in a bitch I owned. I noted her one morning having a staggering gait and disinclination to move about. This condition was ascribed by me to fright, as the dog-catchers had endeavored to secure her. She rapidly emaciated thereafter, being reduced to skin and bones. She was finally given a good purgative, which operated promptly, and after which she made rapid recovery.

Dr. Milnes: I understood from the paper that the essayist thought there was some relation between the case of crotalism of which he read, and these cases described, and I would like to know if that is his idea.

Dr. Verschelden: Yes.

Dr. Milnes: As I understand crotalism it is a disease of the horse only, produced by the poisonous weed *crotalaria sagittalis* in the food.

Dr. Verschelden: I was led to believe from the symptoms that there was some poisonous element in the food of these cattle.

Dr. Moore: I can readily see how the train of symptoms given in these cases would indicate there was a toxic element in the food, but it seems from the paper that only parturient cows were affected, whereas other animals are likely also to be influenced by poisonous food.

Dr. Milnes: Perhaps it is possible that females in the parturient state are more susceptible than males.

Dr. Moore: That may be the case, but we must not forget that in these animals symptoms developed two or three weeks after parturition.

Dr. Milnes: The symptoms are somewhat similar to those in horses suffering from crotalism, in which there is staggering gait, enfeebled eyesight, emaciation, and loss of appetite, which condition extends over a period from three months to eighteen months. I have known cases to die at the end of three months. *Crotalaria sagittalis* grows in the Missouri river bottoms in western Iowa, and is acquired by the animals both from feeding in the pastures and from hay.

Dr. Verschelden: All of these cases that I saw were in the town of St. Mary's, being dairy cows. No cases were seen in the country about; and the home cows were fed on slops and refuse of the city mills.

Dr. Ernst: I will state that in Leavenworth some of the people fed mill stuff, consisting of the imperfect kernels of corn, and the chaff, and the cob, and so forth, to the horses and cattle, and it produced a condition called stomach staggers in the horses. I never saw anything of the kind in cattle. It was so well understood that this stomach staggers was produced by this mill stuff that the people no longer feed it to horses, but still use it for feed for the cattle.

Adjourned to meet in St. Joseph, Mo., in December.

DR. J. S. KELLY, *Secretary*.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly and annual meeting was called to order in the Lecture-Room of the New York-American Veterinary College, on the evening of Dec. 6, 1899, by President Robertson. After roll-call, the minutes of the previous meeting were read and approved.

Report of Board of Censors.—Dr. Clayton, Chairman, reported favorably upon three names proposed for membership, as follows: Archer Edward Parry, D. V. S., A. V. C., 1890; vouchers, Robert W. Ellis and H. D. Hanson; Thomas J. Ogle, D. V. S., A. V. C., 1897; vouchers, Theo. Keller and H. D. Gill, and August H. Drucker, D. V. S., A. V. C., 1894, proposed by Robert Dickson. Drs. Parry and Ogle were elected to membership. Dr. Drucker was very favorably recommended

by the board, but the association could not take a vote for his election to membership, as his application was not in due form, according to the By-Laws of the association, so it was held over until the next meeting.

Papers.—Dr. Clayton read a paper entitled “Malignant Growths of the Nasal Passages and Sinuses”^{*}; and Dr. Gill gave an extemporaneous discourse on “The Hypodermic Use of Camphor and Ether for the Prevention and Cure of Infectious Diseases, more especially Croupous Pneumonia.” Both paper and discourse were thoroughly enjoyed, and just as thoroughly discussed.

Moved by Dr. O’Shea, that a vote of thanks be tendered to the essayists. Seconded and carried.

Reports of Committees.—Prosecuting Committee: Dr. Gill reported for this committee that the name of the illegal practitioner that had been forwarded to that committee had been received by him, and that he had employed counsel to investigate the matter, and placed a retaining fee of ten dollars in his hands to go ahead with the investigation. Moved and seconded that the report of this committee be accepted. Carried.

Dr. Hanson next rendered a Treasurer’s report, which after being favorably reported upon by an auditing committee appointed by the Chair, was voted on favorably by the association.

Committee on Ways and Means: Dr. Bell, Chairman, reported that they had already secured for the January meeting, a paper from Dr. Ryder on “Docking,” and would have another† before the Secretary’s notices for the January meeting went out.

Election of Officers.—This being the annual meeting, the next business in order was the election of officers for 1900. Nominations were as follows: For President, James L. Robertson; for Vice President, H. D. Gill; for Secretary, Robert Ellis; for Treasurer, H. D. Hanson. Moved and seconded that the nominations close. Carried. Moved and seconded, that the By-Laws be suspended, and that the Secretary be directed to cast one ballot for the joint election of the nominees, which was carried, and they were declared elected.

Moved and seconded that the meeting adjourn. Carried.

ROBERT W. ELLIS, D. V. S., *Secretary*.

^{*} Printed elsewhere in this number of the REVIEW.

[†] The second paper to be read will be by Dr. F. C. Grenside on “Action.”

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

Prof. W. L. Williams, chairman of the Committee of Arrangements of the New York State Veterinary Medical Society, writes that he has already begun preparations in an informal manner for the meeting of 1900. It is the opinion of the majority of those with whom we have conversed that the contemplated surgical clinic will add much to the value of the meeting, bringing the members together from all sections of the State, and making them feel when they return to their homes that they have been well repaid for their time and expense. The State Society should be the largest and best in this country, and a special effort is being made by the officers to increase the membership and the interest in its affairs. Let every member take to himself the task of bringing to the roll one eligible veterinarian, do his share toward the programme, attend the meeting, and at one leap the Society will take rank with the foremost associations of the country.

VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

The movement recently inaugurated by some of the pushing spirits in this organization to incorporate all the veterinary factions in New Jersey into one strong State association is meeting with great favor among members of the profession throughout the commonwealth. A large and important meeting will be held in Newark on January 11, 1900, to which every veterinarian in the State is invited. Among those who will address this meeting will be Dr. Wm. Herbert Lowe, of Paterson, who first gave impetus to this popular solution of the much mixed associational problem in that State. We sincerely trust the profession will respond to the call with unanimity.

TENNESSEE VETERINARY MEDICAL ASSOCIATION.

The fourth annual meeting was held in Nashville, on Wednesday, November 8th, 1899. In the absence of President Fenimore, the First Vice-President, Dr. Scott, occupied the chair, and called the meeting to order. The attendance was good, about half of the qualified veterinarians of the State being present. The minutes of the last meeting were read and adopted.

The Committee on Legislation, through its chairman, Dr. Rayen, reported that nothing had been accomplished at the last meeting of the Legislature towards securing protective legisla-

tion for the qualified veterinarians of the State. The committee in charge had met with little encouragement, and it was evident that much time must elapse, and much hard work be done before any results could be hoped for.

There were no new applications for membership, as no new veterinarians had moved into the State since the last meeting.

The Secretary read a letter from Dr. Fenimore, of Knoxville, who had been President of the Association during the last year, in which he tendered his resignation as a member of the Association. It was moved and carried that the resignation be accepted.

Before the reading of the papers various matters pertaining to the veterinary profession throughout the State were discussed in an informal manner, and many points of interest and mutual benefit were thus brought out.

Dr. Scott then read his paper on "Some Diseases of the Horse's Foot from a Shoeing Standpoint." He handled his subject in a capable manner, and his remarks were based on sound, practical sense, aided by a wide experience derived from the management of a large shoeing forge. The paper was freely discussed, every member present taking part.

He was followed by Dr. Bird, with a paper on "Sanitary Science and Prevention." Dr. Bird touched briefly on the prophylactic measures necessary in order to stop outbreaks of certain diseases, dealing specially with the vaccination of animals for the prevention of anthrax and black-leg. The detection of tuberculosis and glanders was also commented on, and the entire subject was discussed in a manner that showed the essayist to be a progressive and scientific veterinarian.

A vote of thanks was tendered to Drs. Scott and Bird, for their excellent papers.

The election of officers for the ensuing year resulted as follows: President, Dr. Scott; First Vice-President, Dr. White; Second Vice-President, Dr. Blackman. Dr. Plaskett was re-elected Secretary and Treasurer.

The time and place of the next meeting was left to the Executive Committee.

There being no other business the meeting adjourned.

JOS. PLASKETT, D. V. S., *Secretary*.

THE OHIO STATE VETERINARY MEDICAL ASSOCIATION.

The annual session will be held in the Board of Trade

Building, East Broad St., Columbus, Ohio, on the evening of Jan. 8, and morning of Jan. 9. All veterinarians are cordially invited to meet with us and especially the veterinarians of Ohio, as business of especial interest to these latter will be brought before the session. WM. H. GRIBBLE, *Secretary*.

NEWS AND ITEMS.

THE GRAND RAPIDS VETERINARY COLLEGE advertises a "School of Farriery."

IN mixing sulphur with a liniment containing oil, by first dissolving it with an alkali, it will be made soluble.

JAMES HARVEY SANDERS, founder of the *Breeder's Gazette*, died at Memphis, Tenn., Dec. 22, aged 67 years.

ARE you still trying to get your fellow-veterinarian to become a subscriber to the REVIEW? If not, you are not doing your full duty to your brother nor your profession.

"BUMPS," the fastest road-horse in the world, having paced a full mile to road wagon last September in 2.03 $\frac{1}{4}$ at Louisville, died of pneumonia at Memphis, Tenn., Dec. 16, aged 9 years.

NEXT TO FRANCE, the United States has the greatest number of automobiles of any country in the world—a few more than six hundred. France has more than six thousand.

AT the annual meeting of the Missouri Agricultural Board, in December, Dr. D. F. Luckey, of Thayer, was elected State Veterinarian, to succeed Dr. T. E. White, of Columbia.

DR. H. D. GILL, of the *Journal of Comparative Medicine*, has been appointed and accepted the position of Veterinarian to the Department of Agriculture of the State of New York.

VETERINARIAN P. O. KOTO, of Forest City, Winnebago County, Iowa, an active member of the Iowa State V. M. Association, has been elected to the State Senate.

MAMBRINO KING, the noted trotting stallion and sire of many of the fastest horses upon the American turf, died recently at the Village Farm of C. J. Hamlin & Son, East Aurora, N. Y. For many years he was unbeaten in the show-ring, being regarded as a perfect type of the trotter.

CLINGSTONE, "the demon trotter," who held the stallion record of 2:14 $\frac{1}{4}$ for some time, and who trotted some of his fastest heats while suffering from a large champignon, was chloroformed a few days ago, on account of general infirmities, aged 25 years.

A SON of wealthy parents was seeking a license to operate a locomobile before the Board of Engineers in New York lately, and when asked what action he would take if he found that all the water had been consumed and the boiler was hot, promptly replied: "I would put more water in the boiler." It would probably be of some assistance to society if he were to carry out his deadly threat.

A FREAK LAMB.—Dr. H. W. Skerritt, of Utica, N. Y., reports the following case: "I recently had a nice little monstrosity presented to me., viz., a lamb with one perfect head and two normal bodies, including eight perfect legs and two tails. The dam gave birth to one nice lamb on the previous evening. Mother and first son are all right."

THE complete vote of the Executive Committee of the American Veterinary Medical Association for the place for holding the next annual meeting of the Association is announced by Chairman Tait Butler as follows: Detroit, 7; Minneapolis, 6. Therefore the thirty-seventh annual meeting will be held in Detroit, Mich., Sept. 4, 5, 6, 1900.

IN SPITE of the fact that this is the day of automotors, when horses are beasts of the past, when starvation stares every veterinary surgeon of the land in the face, Dr. C. J. Mulvey, "The Canuck Vet" of Mooers, N. Y., has just moved into his handsome new house. He built it this summer, and it is large and commodious, elegantly finished and fitted out with all modern improvements. An office and infirmary are in connection. (J. A. M.)

THE twelfth annual meeting of the Iowa State V. M. Association will be held in Des Moines January 10th and 11th. There is an extra inducement for a large attendance, as on the 9th a Tuberculosis Convention will be held, represented by the stockmen, physicians and veterinarians of the State. Dr. Salmon, of the B. A. I., is expected, and it is the hope of the profession that enough interest may be awakened in the subject to secure better legislation for the control of the disease in that State.

CORNEAL ULCERS.—In treating these the eye should first be thoroughly cleansed by a warm saturated solution of boracic acid. After the eye is thus cleansed the upper lid should be painted with a camel's hair brush which has been saturated in a solution of nitrate of silver, ten grains to the ounce. A more energetic method, that has been found very satisfactory and prompt in its results, is to place a wooden tooth pick in a 95%

solution of carbolic acid, and throwing all the liquid off of the tooth pick, touch the ulcer with the stick thus prepared.

WM. HENRY ARROWSMITH, D. V. S., of Jersey City, N. J., died on Thursday, Dec. 21, of a complication of diseases. He graduated from the A. V. C. in 1883, and enjoyed a very large and lucrative practice, having erected at 374 Bergen Avenue, a few years ago, one of the most complete infirmaries in the country, which he maintained up to the time of his death. He was President of the New Jersey Veterinary Medical Association, Veterinarian to the Jersey City Fire Department, and the County and City Boards of Health.

GERMANY FIGHTS AMERICAN MEAT.—A Berlin cablegram to the Associated Press states that the officers of the National Butchers' guild will this week consider the advisability of calling a congress of European butchers to devise steps against the increasing competition of American meat. The guild has distributed during the last two months millions of posters and pamphlets on this subject. The main fight will be made in the Reichstag on the meat inspection bill. The Agrarian papers are resuming their campaign against American meat.

GLANDERS IN SOUTH AFRICA.—While war news cannot always be relied upon, enough conflicting cables reach us of the spreading of glanders among the horses and mules of the British army in South Africa to make it certain that the disease is assuming large proportions. One account says that four hundred horses have been killed; another that the mules imported from America are largely affected, half a hundred having been killed and twice as many isolated. Will not these alarming reports impress our Congress with the necessity for an efficient army veterinary corps?

ANÆSTHESIA BY ELECTRICITY.—“A method of producing anæsthesia by the direct application of an electrical current without the use of drugs was recently described by Dr. E. W. Scripture, of Yale, before the American Association for the Advancement of Science,” says the *Scientific American*. “An alternating current with equal positive and negative phases was made to traverse the nerve. At a proper frequency of about five thousand complete periods in a second, it can be made to cut off all sensory communication by this nerve. Needles can be run into the part of the body supplied by this nerve without any pain being felt.”

BULLETIN NO. 53, of the Texas Agricultural Experiment Station, treats of “Texas Fever,” and includes the results of

experiments by the Texas station co-operating with the Missouri station in immunizing Northern breeding cattle against Texas fever. They are quite exhaustive, and include : (1) Experiments to determine whether sterile blood serum of immune Southern cattle contains any chemical substance of the nature of an anti-toxin, or toxin that could be utilized practically in stimulating at least a passive immunity in susceptible cattle ; (2) experiments on immunizing cattle by infection with the microparasite of the disease by means of tick infestation ; (3) experiments on immunizing cattle by infection with the microparasite of the disease through blood inoculation. Dr. M. Francis conducted the experiments for Texas and Dr. J. W. Connaway for Missouri.

AN ERROR OF DIAGNOSIS.—Under this title Mr. P. Queyron records in the *Progrès Vétérinaire* the case of a cow which he treated for a short time for acute pulmonary trouble, and later for disturbances due to the passage of a foreign body through the chest—diagnoses which were justified by the manifestations presented by the respiration. The condition of the animal became such that she was sent to the abattoir for butchery purpose. At the post-mortem that followed nothing abnormal was found in the abdomen—except the condition of the spleen. This was enormously large and congested ; it weighed 10 pounds and was the seat of a large abscess containing blackish pus, in which a woman's long hairpin was found. The lungs were filled with ecchinococci. Cases of foreign bodies in the spleen have not been recorded in France, but in Germany a few are recorded—by Vogg in three instances, and Zimmerman in one.

FOR OUR S. P. C. A.—*La Semaine Vétérinaire* has recorded lately two peculiar instances of adopted maternity which are quite exceptional. The first is that of a slut adopting a lamb, allowing herself to be sucked and giving to her adopted young one all the caresses and licking possible. The second is that of a hunting slut which adopted a young pig. Her litter having been taken away from her, she defended the little one she fed, and which by good behavior enjoyed the advantages of a second milking condition of his foster mother, which had a second litter. We have heard of late of a still more peculiar case. A young hare was found in the field hurt by a bird of prey. Released from its enemy by a farmer, it was brought to the house and then was taught to suck a pointer slut, a good hunter, which had milk. It did well on it and now runs about the house,

feeding on ordinary food and playing with its adopted mother and laying down between her paws, thoughtless of the danger he exposes himself to.—(A. L.)

WASHINGTON DOG OWNERS' DILEMMA.—In the early part of December, the Secretary of Agriculture issued a notice to the effect that cases of hydrophobia had appeared in the District of Columbia and the adjoining counties of Maryland and Virginia in such number as to make the region a plague-smitten district, and he has forbidden any resident of the district to remove his dogs to any other territory, and prohibited all others from bringing dogs into the plague region. The District Commissioners had no official knowledge of the "plague" before this order was issued, and they wrote Secretary Wilson asking light on the subject. His reply instanced more than enough cases to sustain his decision, and, under District law, made necessary the issuance of a proclamation requiring all dogs running in the streets to be muzzled. But the local dealers in sporting goods were not prepared for the demand, and so nine-tenths of the dogs must either be kept in doors or run at large without muzzles, under penalty of confiscation. Whatever else happens, they cannot be taken out of the city while the Agricultural Department order continues in force.

A VETERINARY SURGEON IN PENNSYLVANIA DIES OF ANTHRAX.—*Chambersburg, Pa., Sept. 7.*—Dr. John J. Smith, one of the most prominent veterinary surgeons in the Cumberland Valley, died at his home here this evening of anthrax. On August 28 Dr. Smith conducted a post-mortem examination on a herd of cattle belonging to Preston Berlin that had died of the disease, sending parts of the animals to the Live Stock Sanitary Board, which immediately diagnosed the disease as the deadly anthrax. A week later eruptions appeared on Dr. Smith's body, and he was convinced at once that he was a victim of the dreaded cattle plague. He told friends that he would die. The eruptions were cut out, and the wounds cauterized, but to no avail. Dr. Smith was 53 years of age and a graduate of the veterinary department of the University of Pennsylvania. He was a member of the council of the First Lutheran Church, a member of the Goodwill Fire Company and a former member of the Town Council. He leaves a widow.—(*Baltimore Morning Herald.*)

VETERINARY EXAMINATIONS AT HORSE SHOWS.—Repeated reference has been made to public "vetting" at horse shows. An inside illustration, made from a snap-shot in the arena of

Madison Square Garden, shows the veterinarians clawing over a horse and makes clear the damage done to any entries that may be disqualified under such public examination. Two flagrant cases occurred at the recent show, one a saddle horse and the other a harness horse—although it should be recalled that the judge, not the veterinarians, was responsible for the public and pronounced disqualification of the saddle horse. Both horses had repeatedly been passed as sound by other veterinarians and had been often on the prize-list. The vetting of horses is not such an exact science that the property of exhibitors should be thus put in jeopardy. In the case of the harness horse shut out by the veterinarians, ringside opinion had him in the first flight, some “rail-birds” placing him at the head of the class. When he was unplaced explanation was found in the fact that the veterinarians had “crabbed” him on account of alleged coarseness of hocks. This was the refinement of absurdity when other vets had passed him and he was going sound, especially as the conditions call for a practically sound horse. The solution of the problem is a difficult one when the large classes of harness horses are considered and it is remembered that most of them are not stabled in the Garden but are driven to the show at the hour of exhibition, but means should be sought to put an end to arena vetting.—(*Breeder's Gazette*, Dec. 6.)

ALEX. EGER, 34 East Van Buren St., Chicago, Ill.,

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AMERICAN VETERINARY REVIEW.

FEBRUARY, 1900.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

A BUSINESS TALK WITH REVIEW SUBSCRIBERS.

Beginning with the first number of Volume XXIV (April, 1900), the REVIEW will inaugurate a radical change in its system of conducting its subscription department. *Every* subscriber whose paid-up subscription terminates with the close of the present volume, and who does not renew the same by remitting the amount prior to the date of mailing that number will fail to receive it. We are compelled to adopt this means on account of the imposition practiced upon the publishers by a large number who are now upon the subscription lists, and who absolutely ignore all bills, notices and entreaties to pay their obligations. There are a very large number of names on those lists to whom the REVIEW has been regularly sent for two and three years, and even longer periods, and from whom no word has ever been received except an occasional complaint of tardiness in the receipt of the journal. We cannot permit those who regularly pay their subscription fees to do so for the benefit of others who are either careless or unwilling to discharge their just indebtedness. We regret very much that this inviolate and drastic rule will strike many who do not deserve such treatment at our hands, but they are usually men who understand that the enforcement of any radical reform must affect the just while reaching out for the unjust.

The REVIEW has for many years had a patronage sufficient to guarantee its readers a much better journal than they have

been receiving, if all paid their bills ; but the yearly accumulation of unpaid balances of subscribers simply cramps the financial management to such a degree that the publishers are unwilling to bear with it any longer.

To those who in consequence of this change in methods are seemingly harshly dealt with, and who we know do not deserve such treatment, we can only say that this step has been taken as much for their benefit as for our own, and we firmly believe that American veterinary journalism will be greatly benefitted by it.

During the month of March bills will be forwarded to every subscriber for all back dues and for Volume XXIV (beginning with April, 1900) ; all who remit will receive the REVIEW promptly each month for that volume ; those who ignore the notification will be stricken from the lists. We cannot afford to lose one, and we sincerely trust that the blue pencil will not mar the name of a single subscriber. But if it does, it is an act of their own.

This notice will be published in a prominent position in the February and March issues of the REVIEW, so that there will be not one who can assert that he did not have due warning of the unwilling change in methods that has been forced upon the publishers.

“A GERMAN-AMERICAN VETERINARY COMMISSION.”

The *Berliner Thierarztliche Wochenschrift* prints the following interesting editorial in its weekly issue of Dec. 21, 1899 :

“The President of the United States, in his message to Congress, remarks that several German States appear to be disinclined to appreciate the excellent natural condition of our food-products and to recognize the constant care with which their purity is guarded by our inspectors all the way from the farm, through the abattoir and packing-house to the export station. It is to be hoped that both governments may work together in the realization of their objects to guard the public health and to secure the purity and wholesomeness of their mutual food-products. Congress is asked for authority to invite Germany to form a mutual commission of experts to thoroughly examine into the manufacture and export of food-products of both countries.

“ With this declaration seems to be connected the adjournment of the committee on the Imperial Meat-inspection Bill, which should have opened its sessions on Nov. 30. It is natural that the great American export firms of Armour, Swift, etc., who command a capital of many millions, are greatly interested in a draft of this Bill favorable to their commercial interests. In this sense Dr. Stiles, the now recalled scientific attaché of the American Legation, has worked here with much skill. By his explanations and demonstrations he has succeeded in giving the interested authorities a certain confidence in the American meat-inspection, which could only be strengthened by the mutual work of such a commission. But it is evident that great care should be exercised in the selection of our experts, as the results of their deliberations will doubtless be weighty in framing the new bill. The American meat ranks so differently in regard to quality and price that its unqualified admission would be of the severest consequences to our consumers, butchers, and agriculturists. The production, dressing and packing of the best (*vollwerthig*) American meat is so faultless that to its admission exists not the slightest hesitation, but absolutely objectionable is the import of poor (*minderwerthig*) meats. In whatever form the latter may come to us they cannot benefit the consumer and must endanger the prosperity of our breeders, our agriculture in general and our meat-industry in particular, as is quite well demonstrated by the historic development of the meat-supply of England. The Spanish-American war also has shown the necessity of caution towards a careless use of American meats, and the canned goods, rejected by the home people, have now been dished up to the English troops in the Transvaal with new labels. If veterinary experts are selected who are thoroughly familiar with the questions involved in the American meat import, a form will easily be found for the Bill whereby the admission of the good (*vollwerthig*) American meat is encouraged and our meat-industry given a healthy competition without compelling it to take refuge to the production of meats of lower value to stem the tide of the inflowing inferior products and which could not guarantee to the consumer that full sanitary protection aimed at by the new Inspection-Bill.”

The above article marks a change of sentiment on the part of the German authorities, as the journal quoted is influential in government circles and reflects their altered opinion. For several years past this veterinary weekly has voiced opposition to the admission of American food products on the ground of insufficient inspection. It is, therefore, pleasant to note the successful mission of the representatives of the Bureau of Animal Industry, and it is to be hoped that the position thus gained by our government may be followed up by a commission of experts able to demonstrate that the principles of meat inspection of both the United States and Germany are analogous, while the difference in our methods of application are the

result of adaptation to different conditions of trade and commerce, but none the less reliable than the German methods. This once accomplished, the way will be cleared for an amicable settlement of our meat exports to Germany. O. S.

ASSOCIATIONAL REVIVAL IN NEW JERSEY.

The REVIEW extends its heartiest congratulations to the profession of New Jersey upon the auspicious inauguration of its State Association, which at one bound has leaped into the foremost rank of such organizations, with a membership large enough to insure success if the spirit of harmony, unity and an unselfish desire for the common weal permeates its adherents. There are many of the best men in the profession on its roll, the kind who take hold, and work with their minds and their hands, and we have no doubt that, with such a leadership, we will have a bulwark of strength in the new association such as New Jersey has never known, and one which will work for the acquirement of such legislation as will protect legitimate practitioners and the public from the curse of quackery, and elevate the profession to its proper plane.

Do not fail to read the "Department of Surgery," which discusses subjects of the most practical importance to the veterinary surgeon.

READ the editorial in this issue entitled "A Business Talk with REVIEW Subscribers," and help us carry it into active operation without the loss of a single subscriber. It will enable you to help establish a journal of which you may be proud.

THE *New York Herald* of January 28 took water in its automobile crusade, and printed the opinion of the principal horsedealers of the metropolis—all of whom reported increasing business, a righteous faith in the future of the horse, and a just condemnation of such ridiculous newspaper twaddle as the *Herald* has been recently indulging in. The paper in question

lost faith in its position somewhat by the failure of the automobile show to attract the multitudes, the appearance of only eight vehicles for the run of the Automobile Club to Tarrytown, and other evidences of the impracticability of the horseless carriage.

THE VETERINARY SERVICE ASSOCIATION, unable to obtain practitioners of any standing to become its slaves for a mess of porridge has adopted the dishonest practice of claiming that certain veterinarians (who would not recognize it in any sense), are connected with it. If this Association cannot see that its system is not only disgraceful but a failure, it is blind indeed.

A SUGGESTION: Eastern veterinarians, take your wives with you to Detroit next September, and go by way of the Great Lakes, thus securing one of the most restful and delightful excursions which the world affords. A party of sufficient size might secure attractive rates, besides the pleasure of renewed friendships and association.

WE will shortly begin the publication of the extensive experiments recently conducted jointly by the States of Texas and Missouri to determine some important facts concerning Texas fever. We have received from Dr. J. W. Connaway, of Columbia, Mo., a number of half-tone cuts illustrating the experiments, which will be employed in the body of the report, rendered jointly by Drs. Connaway, of Missouri, and Francis, of Texas.

A VALUED CORRESPONDENT, Dr. Francis Abele, of Quincy, Mass., reports in this month's REVIEW, under the general heading of "Reports of Cases," the absorbingly interesting circumstance of a man in attendance upon a case of tetanus in a horse, which the doctor was treating with antitetanin, becoming infected with the bacilli of that disease. While it would not apparently be impossible for the germs of the disease in the horse

to be inoculated into an abraded surface upon the man's body, such a case has never before come to our knowledge, although every opportunity for infection is usually given in the course of attendance upon a patient. The case seems open to the suspicion of coincidence, but it is indeed a singular circumstance.

ORIGINAL ARTICLES.

OBSERVATIONS CONCERNING THE SIGNIFICANCE OF STREPTOCOCCI IN COMPARATIVE PATHOLOGY.

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(Continued from page 697.)

STREPTOCOCCI IN INFECTIOUS MASTITIS.

The acute and more chronic inflammatory affections of the udder are so numerous that it seems necessary in considering the specific cause to determine somewhat carefully the nature of the disease in each case. Möller, in his work on Operative Veterinary Surgery* has discussed somewhat fully the various forms of udder infections. They seem to fall very naturally into two groups, namely, (1) those in which the parenchyma is most affected and (2) those in which the stroma or fibrous tissue is involved.† The form of mastitis more frequently encountered as an infectious (transmissible) disease seems to be characterized by very marked changes in the milk accompanied with the usual symptoms of parenchymatous inflammation of the gland itself. The discharge from the udder usually contains flaky masses held in suspension in the clear or perhaps cloudy serum. The color varies, and occasionally the mass is blood-stained. The microscopic examination shows the pres-

* Dollar's Translation, p. 388.

† I have encountered this form in one dairy of eight cows, all of which were affected. In this instance a great variety of bacteria were obtained but streptococci were absent.

ence of agglutinated fat globules, pus cells, and often red blood corpuscles.

The literature on infectious mastitis and inflammations of the udder in which a specific infection is more doubtful, is too voluminous to be reviewed in the limits of this paper. A number of bacteria* have been found associated with these lesions and quite naturally considered of more or less etiological value. The results of Kitt, Nocard, Mollereau, Guillebeau, Zschokke, Bang and still others in which a *Bacterium*, a *Micrococcus*, a *Staphylococcus*, and a *Streptococcus* have been found and reported as standing in a causal relation to the trouble indicate that a variety of microorganisms are active in producing those affections which are frequently grouped without distinction as infectious mastitis. The review of much of the literature on this subject, shows that a number of cases reported as infectious were isolated or sporadic ones, *i.e.*, they were in dairies where the disease did not spread to other animals. While these may be truly infectious in their nature they should be differentiated from the rapidly spreading phlegmons which are easily recognized as infectious (contagious).

If we take into account the variety of anatomical changes which have been described in the various udder affections, we can reasonably admit that different agencies may have been instrumental in their production and that the various species of bacteria which have been isolated from the udder lesions may very likely have been of etiological importance in their respective cases. In former publications† from this laboratory the

* Among the bacteria which have been found in udder trouble and described as the possible or perhaps the more probable cause the following species may be mentioned.

Bacterium phlegmasia uberis (Kitt).

Streptococcus agalactiae contagiosa (Nocard, Mollereau, Guillebeau, Zschokke).

Staphylococcus mastitidis (Guillebeau).

Galactococcus versicolor “

“ *fulvus* “

“ *albus* “

† Moore, V. A., and Ward, A. R. Bulletin No. 158, Cornell University Agricultural Experiment Station.

Ward, A. R. *Journal of Applied Microscopy*, Vol. 1. (1898) p. 205.

facts have been pointed out, (1) that the udder is normally more or less extensively invaded with bacteria and, (2) that certain species of bacteria seem to persist in the milk ducts of the glands when once they become lodged there. If these results apply to cows generally as rigidly as they did to the udders we have examined, an explanation for the presence of a variety of bacteria in the affected glands is not difficult to find. Whether these particular organisms would, under certain conditions, become primarily responsible for udder disease is not known. The evidence is not conclusive that a number of the bacteria heretofore described as the cause of mammitis were not in the affected glands by virtue of their presence in the normal udder. Concerning these points additional investigations are much needed.

Material from two quite serious outbreaks of mastitis has come to our laboratory for examination. In both instances the trouble was investigated by Dr. W. H. Kelly, under authority of the State Commissioner of Agriculture. In the first outbreak, the milk was drawn in sterile bottles after the udders and the hands of the milker had been thoroughly washed in a 1 to 1000 solution of corrosive sublimate. In all, there were eight samples of milk taken from as many different cows. These were carefully examined bacteriologically. In six of the eight specimens streptococci appeared in pure culture. In the agar plate cultures made from the milk from the other two cases colonies of micrococci were associated with the streptococcus.

In the second outbreak the milk was drawn with aseptic precautions directly into tubes containing slant agar. Milk from four cows was thus taken and brought directly to the laboratory where it was carefully examined. A number of cultures were made from each tube. The media inoculated from two of the original cultures (milk) developed into pure cultures of streptococci, and those from the other two were impure, but contained the streptococcus. The streptococci obtained from all of the twelve cases in the two outbreaks appeared to be identical and the clinical aspect of the disease in the different

animals was reported to be the same. Unfortunately, I was unable to secure any of the udders for a more thorough examination.

In a dairy which has been under close observation by Mr. A. R. Ward, Dairy bacteriologist to the Cornell University Agricultural Experiment Station, one cow was found to be troubled in one quarter of the udder with an inflammatory process which caused thickened masses in the blood-stained milk. From this milk a streptococcus was isolated in pure culture which could not be differentiated from the one obtained from the specimens from the cows in the outbreaks mentioned. Another cow in this herd has her udder permanently* infected with a streptococcus. Another animal in the same dairy suffers repeatedly from acute streptococcus mastitis.

I have under comparison at the present time two cultures of streptococci, one of which was secured from the second outbreak of mastitis mentioned above, and the other from a supposedly healthy udder. Thus far I have been able to find certain morphologic and slight cultural differences between them. The streptococcus from the healthy gland grows in much longer chains and the individual segments are smaller than those in the other. It should be noted, however, that streptococci are, or have been in my experience, very rare in milk and in the examination of the normal udders of twelve cows† they have not been detected in a single instance.

During the last three years I have made a large number of bacteriologic examinations of the changed milk from isolated cases of udder disease. As a rule, very few bacteria were found and there was no uniformity in the species. With the exception of the single case cited, streptococci were absent.

* This organism has constantly been found in frequent examinations of the milk from this cow for a period of more than two years.

† For details concerning these examinations see forthcoming Bulletin (No. 177,) Cornell University Agric. Exper. Station, by Mr. A. R. Ward, who was associated with me in certain of these examinations. The udders were taken from milch cows killed for tuberculosis, but in which the tuberculous lesions were restricted to one or two glands in the throat or thorax.

STREPTOCOCCI IN FOOT-ROT IN SHEEP.

In the so-called foot-rot of sheep which has occurred to a considerable extent in this State, we have, in the cases which have come to our notice, conditions similar to those found in the cattle which were suffering from suppurative cellulitis already described. It may be of interest to cite one or two specific cases with the results of the bacteriologic examinations.

May 2, 1899, two sheep which were suffering from the so-called foot-rot were brought to Dr. Law's clinic. They came from a large flock in which forty or more animals were reported to be similarly affected.

Sheep No. 1. An adult female in very poor condition. All four feet and legs were affected and the nails on one foot were quite loose. There was a purulent discharge from openings either between the claws or in the skin just above the hoof. The microscopic examination of the pus from this opening showed a number of bacteria but streptococci were especially numerous. They were not isolated in pure culture. The left knee was badly swollen and from the lower side of the swelling there was a discharge of a thin purulent substance which contained streptococci in large numbers. A few other bacteria, mostly micrococci, were associated with them.

Sheep No. 2. An adult female, black, emaciated but in much better flesh than No. 1. The two fore feet and the left hind one were affected. The hind foot and the right fore one were discharging. The left fore foot was badly swollen above the hoof but the swelling did not extend high up the leg. Fluctuation was marked. The skin was shaved, washed, disinfected and the abscess opened. A thick creamy pus was expressed. From this a number of tubes of media were inoculated and in each a streptococcus developed in pure culture. The pus from the discharging feet contained a streptococcus with other bacteria. The feet were treated locally with disinfectants by Dr. Law. In recovering there was considerable thickening of the interdigital tissue. In this case the suppuration had not extended under the nails.

The streptococcus isolated was fatal to rabbits. It differed, however, morphologically from the one obtained from cattle in that it grew in short chains in culture media and in the pus it appeared singly, in pairs, and in very short chains.

In these cases, as with the cattle, we did not find the trouble to be a "foot-rot," but simply an inflammation of the subcutis leading to suppuration. This of course involved the skin and in cases where the pus burrowed beneath the nail the latter became loose. It is important that this form of infection should

not be mistaken for the genuine foot-rot with which it seems to be occasionally confused. It is not unlikely that in certain cases of this disease there may be more or less secondary corroding of the hoof.

Klein *describes a streptococcus which he isolated from sheep suffering from foot-and-mouth disease. He was able to produce the lesions by feeding sheep with pure cultures. Subsequent investigations have not confirmed Klein's results concerning the causation of this disease. However, his observations are significant in showing the susceptibility of sheep to these organisms.

STREPTOCOCCI IN DISEASES OF HORSES.

The horse stands, perhaps, foremost among the domesticated animals in its susceptibility to bacterial infection. A number of microorganisms have been found associated with the lesions in a variety of its maladies, but those which seem to produce the larger number of affections are streptococci and certain micrococci belonging to the staphylococcus group. In this paper the streptococci only will be considered although a number of micrococci have been isolated which unquestionably possess a certain amount of pathogenesis for the horse. The points to which I desire to call special attention are the frequency with which streptococci are associated in suppurating lesions and septic infections and their superior power to invade and to survive in the tissues of this animal.

Streptococci in "Fistulous Withers" and "Poll-Evil."†—At the last meeting of this society I reported the results of the bacteriologic examination of four cases of these affections. In all of these, streptococci were the only bacteria isolated or

* The *Veterinarian*, 1886. p. 92.

† It should be stated, however, that it is only within the last year that we have been able to begin a somewhat systematic bacteriologic examination of the suppurating lesions in the cases brought to the surgical clinic of this college. Through the hearty co-operation of Dr. W. L. Williams, Professor of Surgery, preparations have been made for an extended bacteriologic study in the future of all infected surgical cases. This part of my paper, therefore, is simply an introduction to the work in veterinary surgical bacteriology which is planned for the coming season.

discovered in the uncontaminated lesions. Further examinations which were made during the year just closed have given different results. During this time ten cases have received such an examination. In these, streptococci appeared in pure culture twice, associated with micrococci three times and in five other cases micrococci (staphylococci) appeared apparently in pure culture. Thus in a total of fourteen cases streptococci have been isolated in pure culture six times, found in impure cultures three times, and in five cases they were not discovered.

The streptococci themselves exhibited a few morphologic differences. One of them which appeared in pure culture originally consisted of exceedingly long chains which grew in flocculi in bouillon leaving the liquid clear. In all of the other cultures they grew in short chains, imparting a uniform cloudiness to the liquid.

As a rule the streptococci isolated from these affections were not pathogenic for experimental animals. One culture, however, destroyed rabbits and guinea-pigs when first isolated, but it soon lost its virulence in sub-cultures.

In a few cases of the affected withers the lesion consisted in a thickened, firm, indurated tissue, rather than the usual central abscess. In the most marked of these indurated cases a micrococcus (staphylococcus) was the only organism found. In most cases, where an abscess had not discharged, and from which uncontaminated pus was secured, streptococci were present. Whether or not, streptococci tend in the horse to cause a more rapid suppuration than the micrococci can not from the history of the cases in question, be determined. It is not positively determined whether the two distinct varieties of lesions observed, viz., the suppurating and the indurated, are different types of disease or different stages in the same disease process. It is interesting to note, however, that in the few cases examined streptococci were usually associated with the suppurating processes and micrococci (staphylococci) with the indurated conditions. A long list of carefully studied cases will have to be recorded before such a differentiation in the bacterial con-

tents of the different lesions can be considered indicative of the nature of the bacterial invasion.

It is worthy of note in this connection that in the medicinal treatment considerable difference is found in the promptness with which certain of these affections yield to iodide of potassium.*

As yet we have practically no data pertaining to the relation existing between the bacteria and the medicine, especially in cases where alteratives have been employed. In the one very marked case of the indurated tissue mentioned, and where a staphylococcus was the only organism found, Dr. Williams reports very prompt yielding to the iodine treatment. In our future examinations, this very practical side of our subject will be carefully considered, and it is hoped that sufficient information will be obtained concerning the relation of the bacterial contents of the lesions to the action of drugs, that when once the first is determined the treatment will be clearly indicated.

A few other cases of infection in horses and colts have come to my notice which furnish still stronger evidence of the marked parasitic powers of streptococci over other pyogenic or septic bacteria for this species of animals. I will mention three cases.

I. Peritonitis following Castration.—This was in a horse castrated by Dr. Williams. The operation was performed in the field and apparently with perfect success. However, a few days later, the animal died from acute peritonitis. At the post-mortem a blood clot was found in the scrotum and the cord was thickened. In the abdominal cavity there was a considerable quantity of clear, amber colored serum. The peritoneum was hyperæmic.

A number of tubes of different culture media were inoculated from the thickened cord, peritoneal exudate, liver, and spleen. All of the tubes inoculated from the liver and spleen remained clear. Those inoculated from the serous fluid and from the thickened cord developed into pure cultures of strepto-

* See Dr. Williams' paper on the use of iodide of potassium in the treatment of fistulous withers.

cocci which grew in long chains. It was exceedingly sensitive and died before its characters and properties were more fully determined.

II. A Case of Emphalophlebitis.—This was in a colt about three weeks old which was brought to the hospital in the spring of 1898. It appeared to be well excepting for the diseased joints. The case was considered hopeless by the surgeon and the patient was killed. The post-mortem examination showed the umbilical vein from the umbilicus to the liver to be distended and filled with blood, pus cells, and bacteria. All of the organs were normal in appearance. In both knee joints (carpus) and one hock joint (tarsus) there was extensive supuration. The pus extended into the connective tissue around the joints and between the tendons and muscles for a distance of ten to fifteen centimeters. The pus was yellowish in color and somewhat flaky. A microscopic examination of cover-glass preparations made from the contents of the umbilical vein revealed the presence of innumerable bacteria including large and small rod-shaped organisms, together with large and smaller micrococci and a streptococcus. Similar preparations from the blood (heart), liver, and spleen did not reveal the presence of any bacteria. In each of the preparations made from the suppurating joints there were a number of short chains and diplococci.

Two tubes of agar and two of bouillon were inoculated from the blood flowing from the carotid artery, and the heart, contents of the umbilical vein, liver, spleen, kidneys, and each of the suppurating joints. The results were as follows: The media inoculated from the umbilical vein contained a large variety of bacteria. One of the four tubes inoculated from the liver contained a streptococcus in pure culture, while the others remained clear; all of the media inoculated with the blood, spleen and kidneys remained clear; all of those inoculated from the suppurating joints gave pure cultures of a streptococcus.

This organism produced a rapidly fatal septicæmia in rabbits. It did not affect guinea pigs. In bouillon cultures it usu-

ally developed in long chains which hung together, forming flocculi in the clear liquid. It did not coagulate milk and failed to grow on gelatin or potatoes. It is interesting to note that here, as often in other cases, these streptococci appear in short chains in the tissues, but as long, winding ones in bouillon cultures.

A study of the cultures made from the umbilical vein showed that there were two staphylococci, three undetermined bacilli and *B. coli communis* associated with the streptococcus. It is at least interesting to note that of all these bacteria the streptococcus was alone able to resist the action of the tissues, and through metastasis became localized in the joints.

III. A Case of Septic Pneumonia and Pericarditis.—In the spring of 1897 a horse which had been operated upon for rearing died a few days subsequently. The post-mortem examination was made the same afternoon. The pericardium and the cephalic portion of the left lung were covered with a grayish, pasty exudate. In the mediastinal space there was a considerable quantity of the same kind of material. The lungs were both hyperæmic and in the left one a considerable area of hepatization. The abdominal organs were not appreciably changed.

Cover-glass preparations made from the hepatized lung and the exudate showed a large number of streptococci for the greater part in short chains. Bacteria were not found in similar preparations made from other organs. A number of tubes of media were inoculated with the exudate blood, hepatized lung, spleen and liver. All media inoculated with the exudate and lung developed into pure cultures of a streptococcus. All of the others remained clear.

This streptococcus grew in long chains which appeared in flocculi, leaving the bouillon clear. It was exceedingly delicate and failed to develop in subcultures which were made a few days later. Morphologically it did not differ from the one obtained from the peritoneal exudate (Case 1).

IV. Streptococci in Epizootic Diseases of the Horse.—Strangles is perhaps the best known of these. A number of investigators

among whom should be mentioned Sand and Jensen*, Schütz†, Poel‡, and Zschokke§ have isolated and studied streptococci from cases of strangles. Schütz succeeded in producing the lesions with pure cultures of his streptococcus when it was injected into the nasal passage of healthy horses. I have examined the pus from an abscess in but one case of strangles and that a chronic one. This contained a streptococcus which resembled morphologically and in its behavior on culture media that of Schütz but it was innocuous to small animals. Lignières,|| however, questions the etiological significance of the streptococcus, preferring to consider it secondary to the real causal agent, which he found to be a *cocco-bacillus* identical with that of influenza (*Brustseuche*).

V. *Brustseuche* or *Infectious Pneumonia*.—This disease has been attributed to a streptococcus although several investigators have reported the discovery of other supposedly etiological factors.

In 1887, Schütz¶ published the results of his investigations into the cause of *Brustseuche*. He described an organism which appeared as a diplococcus in tissues but in bouillon cultures it grew in flocculi. From the description given it appears that this organism was a streptococcus notwithstanding the fact that in the tissues it appeared more often as a diplococcus. In cultures he speaks of it as chains growing in masses. He mentions a capsule, but in the cases described it does not seem to be invariably present and it is not mentioned in preparations made from cultures. Chantemesse and Delamotte, Galtier and Violet,

* Deutsche Zeitschrift für Thiermedizin. XIII. (1888) S. 437.

† Archiv f. wiss. uprakt. Thierheilkunde, (1888) S. 172.

‡ Fortschritte der Medicine. VI. (1888), S. 4.

§ *Loc. cit.*

This literature is reviewed by Lüpke in *Centralblatt f. Bakteriologie u. Parasitenkunde*. Bs. V. (1889) S. 44.

|| *Recueil de Médecine Vétérinaire*, 1897, Nos. 12 and 16. Translated in full in *The Journal of Comparative Pathology and Therapeutics*, XI. 1898, p. 312.

¶ Virchow's Archiv, Bd. CVII. (1887) S. 356.

and Cadiac found streptococci in the lesions of animals suffering from this disease. Although differences appear to exist in the streptococci obtained by these investigators there is a striking similarity in the descriptions of these cultures. In the absence of fresh cultures of these organisms it is unwise to speculate upon their identity, or dissimilarities. It seems quite clear, however, that if any of these streptococci are demonstrated to be the cause of this disease the honor of its discovery belongs to Schütz.

Lignières,* who had exceptionally good opportunities in 1895-96 for studying this disease found the streptococcus of Schütz and identified it with the streptococcus of strangles. Lignières, however, concluded from his investigations that the cause of the disease was a *cocco-bacillus*† which he isolated with

* *Loc. cit.*

† For the convenience of those who do not have Lignières original article his description of the organism and the method of obtaining it are appended.

“When one examines the preparation after it has been stained the bacteria present themselves under the form of very small diplococci, isolated cocci, and longer forms with rounded ends. These last cocco-bacilli represent the tube form of the microbe. At the moment of division they appear as diplococci, while the micrococci result from the completed and recent separation of diplococci.

The microbe also often appears as a diplococcus when it is examined without staining.

In some special conditions the cocco-bacillus elongates and presents itself under the form of a genuine small bacillus. Finally, in the pus of experimental abscesses obtained by subcutaneous injection in the horse, it takes the form of streptococci-bacilli.

It does not form spores, and it is killed in less than a quarter of an hour at 65°C.”

Cultures.—“It is an aerobic organism. Its first cultures are difficult to obtain, but when it has been accustomed to artificial media it grows rather abundantly.

In peptonized bouillon, after twenty-four hours, one observes a uniform turbidity, which lasts for several days. The reaction of the medium does not change.

Plain bouillon is not so favorable for growth.

On gelatine, at a temperature of 20°C., it forms after two or three days rounded colonies which are at first transparent, and then slightly opaque and white, and which never liquefy the medium. They scarcely exceed a millet seed in size and resemble rather closely the colonies of zoögleic tuberculosis, save that the latter are much less firmly adherent to the gelatine.

Agar is a rather poor medium of culture, whether it be plain or glycerinized. If the material used to inoculate is vigorous, abundant transparent iridescent colonies appear on the surface of the agar, and gradually become opaque and bluish white.

The germ of influenza grows in milk which is not coagulated even after several weeks.

Agar of Würtz and rubin agar are not reddened.

some difficulty. He found that this organism soon escaped from the tissues but that it "places the animal organism in an extraordinary state of susceptibility with regard to extraneous bacteria notably streptococci." On this ground he explains the almost constant presence of streptococci in the lesions of this disease.

It has been my privilege to make a bacteriologic examination of the diseased organs from 5 cases of Brustseuche. All of these were diagnosed, and, when not too far advanced, treated by Dr. Law. The horses were from different stables in Ithaca. Dr. Law made the post-mortem examination in four of the cases, carefully removed the organs and brought them to the laboratory. In one case I assisted at the post-mortem.

In each of the five cases the lungs were more or less hepatized but the other organs were nearly normal in appearance. Several tubes of bouillon and agar were inoculated, and agar plates were made from each lung and in three cases from the liver, spleen, and kidneys. Without exception, a streptococcus appeared, usually in pure culture, from the lungs. The inoculated tubes from the other organs remained clear. The streptococci isolated from the different cases were identical in their morphology and cultural manifestations and pathogenesis.

A microscopic study of the lungs from the different horses showed micrococci single, in pairs and occasionally in short chains. Distinct capsules were not observed. In bouillon cult-

Potato is not suitable for the cultivation of this microbe.

Of all media the most favorable is peptonized bouillon to which a small quantity of serum has been added "

Search for the Microbe.—"Inoculation and the direct cultivation of pathological products taken from horses affected with the disease as a rule do not give any results in ordinary conditions, but if one takes 4 or 5 c.c. of blood, pleuritic liquid, or pulmonary serosity, and injects the material into the peritoneum of a guinea pig, the animal not rarely succumbs to a peritonitis, in the liquid of which the microbe of influenza is encountered in considerable numbers. Nasal discharge, whether sanious or not, taken especially at the beginning still more frequently gives a positive result. If the culture is not pure one inoculates in succession, into the peritoneum, one, two, or three guinea-pigs, and very soon only the bacillus of influenza shows itself.

This microbe retains its virulence for a long time in peritoneal liquid, and when transferred thence to artificial media it grows in them abundantly."

ures however they appeared in long chains, leaving the liquid clear, as described by Schütz.

This streptococcus did not grow in gelatin, or serum, or on potato. It would not develop in acid media. On agar the colonies were small and characteristic of streptococci, *i. e.*, with a thickened convex grayish centre surrounded by a thin, spreading, bluish border, nearly equal in width to the diameter of the central portion. It fermented dextrose, lactose and saccharose, with the formation of acids but no gas. Milk remained unchanged in appearance.

In mice and rabbits it produced a rapidly fatal septicæmia, but guinea-pigs were unaffected. A horse inoculated in the pleural cavity with a small quantity of the culture from case No. 3 was killed 10 days later. At the point of inoculation and extending over an area equal to one-half of the lung there were strong adhesions between the lung and parietes. The subjacent lung tissue was hepatized. Pure cultures of the streptococcus were obtained from the exudate and from the hepatized lung.

Although a few discrepancies exist between the description of Schütz's organism and the streptococcus which I have found, they are not sufficient to warrant the opinion that they are different species. In the essential features they seem to be identical. The cases were examined before the publication of Lignière's results, and the methods I employed did not meet the requirements of those used in isolating his cocco-bacillus. Although a very careful histological study of the pneumonic tissue was made, Lignière's organism was not detected. At the first opportunity his methods will be tried.

(To be continued.)

DR. THOMAS L. RICE, assistant inspector of the Bureau of Animal Industry, who was stationed at El Reno, O. T., last quarantine season, has been transferred to the meat inspection department and ordered to report to Dr. A. J. Payne at Cincinnati.

ACTION.

BY F. C. GRENSIDE, V. S., NEW YORK CITY.

A Paper read before the January Meeting of the Veterinary Medical Association of New York County.

The veterinarian, without assuming more responsibility than is usually imposed upon him, in the examination of a horse for soundness for a client, is not called upon to express an opinion as to the character of his action, any more than he is to draw attention to defects of conformation. He is, however, frequently requested to give an opinion as to the practical importance of some abnormal condition of limb, eye or wind in influencing a horse's usefulness for the purpose for which he is required.

He may have a seam in a foot, a splint, or some such more serious conditions, as a spavin or ringbone, none of which cause lameness at the time, and the purchaser does not object to their presence, providing they are not likely to cause lameness; so the veterinarian's advice is sought. Certainly such conditions constitute predisposing causes of lameness, but no more so in some instances than defective action.

The character of the action is a very important factor in determining the amount of "wear and tear" a horse will stand without showing ill effects; so the study of action should not be ignored by the veterinarian, as he is sometimes called upon as an adviser to give an opinion as to the suitability and desirability of a horse for some purpose outside of the question of soundness. The acquisition of a knowledge of action, or, in other words, to become a good judge of action, is not such an easy matter as might be imagined. There are many that have a good eye for a horse, and in fact are in a measure good judges, who cannot intelligently criticise a horse's action from different standpoints.

There are many that are taken with flashy action. Flashiness of action, as a rule, enhances the market value of a horse that possesses it, but it is very apt to be associated with greater de-

fects from a utilitarian stand point than that which is less attractive. In estimating the quality of action correctly in different individuals one has to have an ideal. How seldom, in sitting behind a horse and closely observing his way of going at the trot and walk, do we find action that comes up to our ideal. Perfect action, as far as usefulness is concerned, is frictionless and light, and the foot is placed on the ground squarely. There is no loss of time-power in progression, or, in other words, the frictionless mover does not labor, neither does the light stepper experience the ill effects of concussion, the result of bringing the foot to the ground in a pounding manner. What a saving of "wear and tear" and power the smooth mover and light stepper experience.

One is amazed in instances to observe how much work a weak-footed, poor-legged horse will stand and still remain in workable condition; but it can be accounted for in many cases by the defects mentioned being compensated for by light action.

It is interesting and instructive to study the numerous and varying conditions that conduce to defective action. Lightness of step appears to be a quality not always dependent upon the conformation of the individual. For instance, length and obliquity of the pasterns are usually said to cause lightness and elasticity of the tread, but do not always do so, for we find many heavy-going horses of this formation. Mechanically this formation should conduce to light stepping, and does in a measure, but from the fact that horses with oblique pasterns sometimes pound leads us to look for another explanation. The statement may be advanced in explanation that the elasticity resulting from oblique pasterns may be neutralized by a straight shoulder; but this theory will not hold, as one not infrequently finds straight-shouldered, short pasterned horses that step lightly. Another explanation has to be found. We have to seek elsewhere in the animal economy than in the peculiar arrangement of the bones, muscles, tendons and ligaments of the limbs to account for the light step of some horses. The endowment

with this desirable quality is undoubtedly referable to the nervous system, just as speed is.

We cannot determine the degree of a horse's speed by studying his external form. We have to subject him to a test, and so we have in forming a conclusion as to the degree of lightness or heaviness of his step. With regard to labored progression the tendency to it is usually determinable by an inspection of a horse's conformation. All deviations from the steadily carried top in the trot, in which there is no rolling, jerking or waddling, and from the straight flexion and extension of the fore-legs, in which there is no straddling, dishing, or winding-in, and to the equally straight and easy flexion of the hocks, can as a rule be determined by an examination of an individual's conformation.

The horse with thick or loaded shoulders and wide chest is apt to roll; the one that stands with the fore feet placed wide apart straddles; the knock-kneed one, as well as the one that toes in, generally dishes; while the horse that toes out winds in.

With the hind legs the cow-hocked horse usually slings his legs in a circumductive manner outwards. The horse with his hocks wide apart and feet close together, screws his hocks outwards, and usually plaits.

When the hocks are placed behind instead of under the quarters there is likely to be a dragging movement of the hind legs.

Defective conformation of the legs then shows itself with almost unvarying regularity in its effects upon the action.

In order to have the straight undeviating action, a horse must flex and extend his legs during progression in a line parallel to the long axis of the body. The knock-kneed, bow-legged, or even calf-kneed horse cannot do this, and consequently experiences the ill results of a loss of time and power in progression. Apart altogether from the question of the degree of the lightness or heaviness of the step, the manner in which the feet are placed on the ground has a very great influence in determining "wear and tear," and is consequently an

important point to study. The horse that toes in usually has the inside quarter of his fore feet defectively developed, which becomes more marked if he is not rationally shod.

The defect of formation of the inner quarter consists in a slanting off of it from before backwards and outwards, and from above downwards and towards the centre of the foot, causing this quarter to assume a wedge-like form and to literally act as a wedge between the shoe and the sensitive part of the inner quarter, thus predisposing it to bruising. In addition to this, the horse that dishes usually brings his foot down with force on the inner quarter. This manner of planting the foot not only subjects the ligaments to undue tension, but is a fruitful source of troublesome corns.

On the other hand, a horse that toes out is apt to come down with most force on the outside of his foot. This is a much more defective formation than the former, for it not only causes wind-ing-in and great liability to interfere, but the planting of the foot is usually accomplished in a manner that results in the production of considerable concussion, and also subjects the ligaments to great tension, so that the legs soon begin to show the effects of wear and tear. Some horses come down with most force on their toes, causing them to what is called stub their toes. Such a manner of planting the foot is apt to cause stumbling, and increases concussion to a marked extent. Short pasterned, straight-shouldered and short-gaited horses often show this defect. Just the opposite manner of planting the foot or coming down with the heel first, is not at all uncommon. This defect of action is not only likely to cause bruising of the heels, but subjects the tendons and ligaments at the lower and back portion of the fore legs to excessive strain. Ordinarily this imperfection is only observed in long-gaited horses; but some horses that plant their feet in a favorable manner when going at a moderate pace will, when forced to a faster one, lengthen their stride and show this defect, often called "pointing," to a pronounced degree. Deep and oblique-shouldered horses with little knee action, like thoroughbreds, often go in this way, but

its ill effects are not so great as in those with a considerable amount of knee action. "Threading" or "plaiting" are terms used to designate the swinging of the elevated foot around the one that is placed on the ground in progression. This ungraceful manner of going, which occasions a loss of power, a tendency to brush, and liability to trip, is most clearly shown in the walk or slow trot. The horse that plaits is usually either a narrow-chested one, or one fairly wide in the chest, that stands with his feet very close together. This conformation is the opposite to that found in the straddler, and of the two evils the latter is the greater, for it gives rise to a stilty way of going and a manner of putting the feet down which is very injurious to the legs.

THE COMPOSITION OF A FEW VETERINARY PATENT MEDICINES.

BY G. E. GRIFFIN, VET. 1ST CLASS, U. S. ARMY, PORTO RICO.

It has been my fortune, call it good or bad, to have encountered on numerous occasions individuals, generally designated as smart "Alicks," professional and otherwise, armed with sundry and divers, but mostly divers, bottles of patent medicines, such as Elbow's Caustic Bladderskite, Cayeuse Stingeree, Snowman's Cure-All, and OwHullahan's Dead-Sure Cure for Glanders, and each time the handlers of these classical remedies invited me to regale my olfactories with a sniff at the contents, followed by an offer to bet me that I didn't know what they were using. The result was that I got so well acquainted with the peculiar stench of each production that I could tell what they were on smell, and in self-defense would yell out their names, too. I soon began to ask myself what it was that led intelligent people to pay from \$1 to \$3 for stuff of this kind, and thought it my duty to investigate their virtues and their composition. It didn't take me long to discover that they possessed but one virtue, faith, and that hope got in her fine licks and did the rest, as the kodak people say, to encourage you

when in doubt as to buying. It certainly was a serious job to tackle the composition, but for the sake of those fellows who are always howling that they get nothing out of the professional journals but stuff about "bugs" and "worms," I thought I would go up against it, and I have been going thus for many moons and with satisfactory results. Now, the only fear I have in giving my discoveries to a cold, cruel world is that some of the smart "Alicks" will get a patent out on the remedies, make a fortune, and maybe never send me a cent or even say "thank you, Griffin"; and, then, again, some other fellow, having turned aside from chasing the "bug" of azoturia (and why should it not have a bug all to itself same as the other diseases?) may claim prior discovery, and make me angry, indeed. But there never was a good accomplished without a sacrifice of some kind. So here goes for the good it may do my "compadries" in the profession who are not "stuck" on "bugs" or micrococci, but want a dead sure thing with a good smell to it and a money-making attachment.

The first of these so-called remedies I practised on was "Gombault's Caustic Balsam," warranted to be sure death to curb, splint, sweeny, poll-evil, grease heel, capped hock, strained tendons, founder, wind-puff, inflammations, throat difficulties (Lord, save the mark!), swellings, or ulcers, lameness from spavin, ringbone and other bony tumors, and many other diseases of or ailments of horses, cattle, sheep, and dogs; warranted also to quickly remove all bunches or blemishes, without leaving any scar or other injurious effects (think of that, you vets!). It could also be reduced with sweet or raw linseed oil, and used as a most valuable liniment in all kinds of simple lameness, strains, etc., etc. I thought if I could just "get on" to this combination that I wouldn't call the Queen my aunt, and that I would soon have the horse world by the gluteals and a down-hill pull at that. Moreover, a certain cavalry officer of my acquaintance whose reputation as a horseman, and vet too, was one of the institutions of a cavalry regiment I know of, was in the habit of using the stuff on the side, unbe-

knownst to the vet, if ye please, and I began to think maybe this was the basis of his reputation, as I was never able to discover any other, but you know when you get the name of an early riser you can sleep till the cows come home. I found that the caustic balsam was a very good blister, clean, easily applied, and would not take the hair off while in action. After working on this blister, for it is nothing more, for some time, I discovered that it was made as follows, and had the satisfaction of seeing my production highly commended by a number of people, who told me that I was using "Humbug's Caustic Balsam." Now, I suppose that Gumbault, who claims to be a great French veterinarian, will say that imitation is the sincerest flattery, but that to get the real and only genuine you must notice the duefunny on every bottle grown on his farm. The composition is as follows :

R	Croton oil	4 fl drams
	Cotton-seed oil	2 fl "
	Oil of camphor	1 fl "
	Oil of turpentine	2 fl "
	Oil of thyme	$\frac{1}{2}$ fl "
	Kerosene	4 fl "
	Sulphuric acid	20 minims

To the mixture of croton and cotton-seed oils add the sulphuric acid, stirring continually, then add the other constituents. After standing about three days it is fit for use.

I tried this preparation in every conceivable manner, using Gumbault's advertised article as a check, but found that I had nothing but a good blister, and was surprised to discover that Gumbault's caustic balsam was nothing but a similar blister, and that the claims made for it on the label were lies pure and simple, and that it was not a "safe or reliable remedy" for any of the numerous things mentioned on the label, and that it could be safely classed as a fake. Still I was not discouraged, but purchased several bottles of a compound called "Kitchell's Liniment," in use on race-tracks and other places where old "skates" having fancy names, and records made by their great

grandfathers, were helping cheerful idiots to become paupers. This stuff was "dead" easy, requiring only

R Aquæ ammoniæ 1 pint
 Water 3 pints
 Caramel q. s. to color.
 Mix.

This stuff catches the race-horse man; he uses it for what he calls a "brace." It costs to make about two cents a pint, and sells for fifty cents. The brace of course is on the fellow with the horse.

The next tussle was with "Kendall's Spavin Cure," but after my experience with the balsam it didn't take long to "get next" to this. Farmers, livery men and embryo horsemen with wooden legged horses, who call every lameness a spavin, or, to be more sporty, a "jack," invest in this stuff until the vet is called in. The composition is as follows:

R Turpentine 1 fl oz.
 Alcohol 2 fl oz.
 Camphor $\frac{1}{2}$ oz.
 Iodine 25 grains
 Heavy petroleum oil $\frac{1}{4}$ fl dram
 Oil rosemary 1 fl dram

Sig.—In the mixed oils dissolve the camphor and iodine.

This spavin cure, so-called, is a fake of course. The stuff is a fair blister.

After considerable trouble and no little expense, the composition of a preparation called "Centaur Liniment," claiming to be almost as wonderful as the caustic balsam, was arrived at. This preparation is a soap emulsion, with essential oils and the usual aromatic oils to disguise it. The composition is as follows:

R Oil spearmint 1 dram
 Oil mustard 15 mins
 Oil turpentine $\frac{1}{4}$ oz.
 Oil amber $\frac{1}{2}$ oz.
 Black oil $\frac{1}{2}$ oz.
 Soap 130 grains
 Caustic soda 10 grains
 Water to make a pint.

Great care should be used in preparing this, as the oils may not emulsify readily, and the water should be warm.

The soap should be placed, together with the alkali, in a flask, and then dissolved in two ounces of hot water; add the mixed oils in very small quantities at a time with vigorous shaking. When the mixture has once assumed a creamy consistency the oils may be added more rapidly, but in any case reasonable care should be observed, and this is true in adding more water, which should be warm, until the full pint is made. If the oils do not emulsify readily, it is necessary to begin over again, as either too much oil was added at first or the water was not warm enough. Strict attention must be paid to both of these considerations in order to secure success.

This is a good liniment, but not superior to any ordinary soap liniment of course. As for its doing what is claimed for it, that is all bosh.

A few more preparations have been investigated. They are all more or less snares and delusions, and as they in no case accomplish what they claim, they are of little use. One advantage the animal on which they are used derives is that he gets a rest while the stuff is in action.

As to "O'Hullahan's Glander Cure," it has been used extensively in the West, where thousands of dollars have been expended on it annually. I investigated this so-called remedy very thoroughly, but did not discover its composition, except that it gave a starchy reaction and had an odor of peppermint. It was claimed for it that it was very successful, and that the cures made by its use were very numerous, but I believe that the so-called cures were due to the disease assuming the sub-chronic form, and as the atmosphere of the far west is beneficial to diseases such as glanders, the so-called cures were decidedly climatic. Moreover the animals treated were those recently arriving from the middle States. At length it was my good fortune to encounter the manufacturer of the "dope," and I need not say that I looked with profound respect on the only person in the civilized world having a "dead shot" remedy for this disease. I found the gentleman to be a shrewd, but very illiterate Irishman of the old school, and very shy of "veteri-

nary horse doctors," as he put it, the inference being that he had two classes of horse doctors in his mind, as we have in the army. I couldn't get anything definite from Mr. Mullcachey, for such was his name, his remedy being called after his grandfather on his mother's side, who, by the by, was the original discoverer of the compound in Ireland in times contemporaneous with the "Molly McGuires," and he was not at all inclined to discuss glanders from any standpoint beyond saying that "it was a bad disorder and av curse it bein a disease of a baste a human crature could not have it, thanks be to God." He admitted, however, that the medicine was not a success in every case because the people did not use enough of it, but were too stingy, "begrugin' the poor baste the medicin to cure him." Believing that "when wine is in, the truth is out," I took an unfair advantage of Mullcachey, all in the interest of science, be it remembered, and while enjoying the stimulation of a few cold bottles, he told me in strict confidence, "seein' it is yer-self, and I would'nt tell it to another, be the nife in me hand and there is letters on it, the most of the cure is made of potatoe water, and the juice of the mint; the potatoes, of course, to be boiled with the skins on them; then ye add—but help me sowl if I tell ye that, for that is the best part of it, and if ye don't believe it go to Ireland, and in the county Leitrim they will tell you how me grandfather on me mother's side cured Captain Plunkit's mare that was dead on her feet with glanders." I lost the rest of the description, but the missing link is probably still hid in the pleasant valleys of the county Leitrim.

I am sorry the glanders specific has been lost, but I can furnish the composition of "Mustang Liniment," "Derby Liniment," and one or two others on application by any veterinarian who will enclose a stamped envelope for reply.

The question that now agitates my mind is, have I accomplished any good in placing the composition of these so-called remedies before the profession. I hope I have, and I further hope that this paper may not be the means of stimulating some bright mind to starting a factory for the stuff and sending it

out with yellow labels and red wrappers. I may not have gotten the exact ingredients in each case, but I have come so near to it that there is no fun in it.

THE ETIOLOGY OF PARTURIENT PARESIS.

BY W. A. THOMAS, D. V. M., LINCOLN, NEB.

Dr. Schwarzkopf in his report on parturient paresis before the American Veterinary Medical Association last September in New York City was very enthusiastic over the Schmidt treatment. He gives in his report the experience of 18 veterinarians. The paper was evidently accepted without discussion. If any one had a different opinion he did not express it.*

In this report the record is 87 recoveries out of 119 cases, or $73\frac{1}{3}$ per cent. of recoveries. Hence, according to this improved method of treatment, we must lose over 26 per cent. Our interest is in the 32 cases that did not recover. If post-mortems had been made on the 32 cases that died and a description of the condition of the brain and spinal cord been added to the report the conclusions would have been very different.

Why should a cow that gives a large quantity of milk be any more liable to a toxic condition of the udder than one that gives a smaller quantity? If we believe the animal to have a toxic udder, how are we to account for lesions of the brain? If potassium iodide is good treatment for toxic udder, is it equally valuable for lesions of the brain?

Among other modes of treatment the intravenous saline solution as used by some show equal, if not greater, success than the Schmidt treatment.

Probably one of the greatest factors of success for these new treatments is that medicines are not given in a drench.

In a typical case, taken sick six hours after delivery, and

* The paper of Dr. Schwarzkopf was read by title only and referred to the Publication Committee.—EDITOR.

which died ten hours later, without a struggle, I made a post-mortem which showed meningeal congestion, hæmorrhage and œdema of the brain and spinal cord, with a clot in the fourth ventricle.

The lesions of parturient apoplexy are within the cranium and spinal column, and I believe that the profession will be agreed if they make examination of the material that comes into their hands.

REPORTS OF CASES.

“ Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

AN ATTENDANT CONTRACTS TETANUS FROM A HORSE.

By FRANCIS ABELE, V. S., Quincy, Mass.

December 15, 1899, a coachman stopped me on the street to say that a certain unfortunate horse (mare) had scratches. Would I leave some more medicine, such as he had used on another horse. He also remarked that the horse was stiff, and was then at the shop for the blacksmith to look over. (She had once had laminitis with a perfect recovery.) Next day the coachman again saw me, to say she had two sore eyes; they looked sore and red in the corners. I then told him he probably had a case of lockjaw to deal with.

I was asked by owner to see the same and confirmed my supposition. Owner would have had animal killed, but I asked for it to try to treat, whereupon owner said he would have it treated himself. As the coachman had then gone with the family to their winter residence, the gardener was delegated to attend the horse. Horse received 10 c.c. antitetanin from Pasteur Institute of Paris. Was kept in a box stall, screened by blankets, and twice a day received all the hay it wanted, together with mash of shorts and oats, in which was a mixture of carbolic acid and cannabis indica. I never entered the stall from time of injection till recovery. None but gardener did, and he only twice a day, with orders not to touch the beast or speak to it. Now, for the interesting part.

The coachman telephoned that the gardener had the lock-jaw, was in the city hospital, and the doctors had no hope for

his recovery. I saw the doctors and found that such was the case. That was December 29, 1899.

The man had jaws locked, had cramp of knees, so he was unable to get into carriage alone to get to hospital, and had tucked-up belly; all of which the horse had had. When he received the antitoxin he said to the doctors, that is what Dr. Abele injected into the horse.

It seems the gardener had a boil on his neck, which was undoubtedly the seat of infection. One doctor does not believe that the horse was the cause of infection, as there was no traumatism about her to our knowledge. The other thinks possibly the manure was cause of infection! Does any one know if bacilli in question are found in fæces?

Whether this new infection is a precedent I do not know, but anyone who is interested enough can have fuller particulars by writing me. It is by a record of facts that principles are formed and knowledge obtained.

AN EFFORT TO DIAGNOSE A CASE.

By J. A. McCrANK, D. V. S., Plattsburgh, N. Y.

Dr. Derr, of Mansfield, O., has reported a peculiar case in the December number of the AMERICAN VETERINARY REVIEW. He gives us symptoms which I think make a diagnosis almost impossible. He asks through the veterinary periodicals for help. He admits that he is at bay. Now, I hope our brothers professionally who can help him, will not close their eyes and their ears to his honest, earnest supplications for help. Don't treat him as you have me. Our attempts to give you the true symptoms on which you could lend us aid are earnest. I hope we are not beneath your notice. I know that we are not above your class in the science, for if so, "God help the veterinary profession."

I have been thinking of this case as reported. I often think he is mistaken in his symptoms. One thing is evident: he was very slack or lazy when he did not have a post-mortem. No excuse, Doctor.

The regularity of the heart, normality of its action, normal condition of the fæces, that appetite, etc., leave me in a quandary at every turn.

I would like to call it a case of purpura, but this periodical abdominal trouble corners me. When my purpura patients

show signs of pains and sweats I consider it time to pick up my grip and instruments, make an unfavorable prognosis, and get out.

It cannot be an affection of the heart, for the heart's action is normal and regular. It cannot be a foreign body working its way from the stomach towards the heart, for then its action would be interfered with.

Were it an embolism or thrombus we might not expect instant death.

Now, I recall to memory a case of mine some three years ago. It was similarly reported. I was called; the animal was dead and hauled out when I arrived. On post-mortem I found a large abscess of one of the mesenteric glands, recently broken.

The next week I was called to a second case of like symptoms. The beast had recovered from terrible pains and sweats when I arrived. Ten days later she had a second attack and died. The post-mortem revealed similar abscesses. On close questioning of the owners, those horses had suffered from strangles some two or three months earlier and had received no subsequent treatment.

Might Dr. Derr's case not be one which suffered from the after effects of some debilitating disease?

In conclusion, after a diagnosis of a sequel to some debilitating disease, I am obliged to glance only slightly at some of the symptoms enumerated.

FOREIGN BODY IN MILK DUCT.

By FRANCIS ABELE, V. S., Quincy, Mass.

A cow that was bought of a trader very cheap and not warranted, gave a fine mess of milk, but once in a while blood came from one quarter. At times a foreign body could be felt in the udder resembling a short milk tube. Cast the cow, inserted small artery forceps into duct and succeeded in catching end of object, which proved to be the end of a quill. Was surprised how easily quill and forceps came through the duct.

A MIXTURE OF BORATE OF SODA and milk is recommended by a Parisian chemist as the best general antidote. It should be given the first thing after emptying the stomach. For vegetable poisons, the best antidote is a one per cent. solution of permanganate of potash.

CAFFEINE markedly increases the diuretic action of digitalis. The combination is of especial value in cardiac dropsy.

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By PROF. OLOF SCHWARZKOPF, Flushing, N. Y.

ARGENTUM CREDÉ NO SUBSTITUTE FOR MALLEIN.—Prof. Roeder, Dresden, has experimented with Argent. Credé to determine its value as a diagnostic agent in glanders, for which it had been recommended by Dr. Rerhioff. A horse which showed characteristic swelling of the submaxillary glands and one-sided nasal discharge was given O. S. Argent. Credé in 50.0 water, by intravenous injection. The temperature rose in six hours from 39.1 C. to 41.0, remained so for twelve hours, and after twenty-four hours was found to be again 39.1. On the height of reaction the breathing was greatly accelerated, whereas the pulse remained at 44–48 throughout. The post-mortem examination revealed nasal glanders, the lungs being healthy. Roeder then applied intravenous injections of Argent. Credé in cases of strangles, influenza, pneumonia, pyæmia, purpura hæmorrhagica, and to several horses in the surgical ward which were free from fever, in every case producing a rise of temperature of from 1–2 degrees Celsius, the particulars being carefully noted and reported. Finally he injected an old, healthy anatomy-horse which gave reaction of 38.1 to 39.2 within four hours. Two days later this horse received 0.5 mallein without reaction and on being killed for dissection was found to be healthy. The results go to show that so far no chemical agent has been found which can be looked upon as a substitute for mallein, which upholds its claim as a biological product on a scientific basis.—(*Berlin. Thier. Woch.*)

ENGLISH REVIEW.

LAPAROTOMY [*By W. Panier*].—Antisepsy has certainly opened the doors for interference in abdominal cases, where before it, the surgeon would hesitate and often refuse to act,—and while peritonitis would not often follow abdominal surgical manipulations in dogs, to-day, thanks to antisepsy, these can be almost considered as never fatal. The author reports the case of an Airedale dog which was brought to him suffering with

considerable pains of the bowels. By careful manipulation a hard foreign substance was made out in the abdomen. After chloroform being administered, and with most attentive anti-septic measures, a round flint stone was extracted, which was as big as a walnut. Careful stitching of the intestines, suturing of the skin, thorough antisepsy of all instruments, needles, etc., were resorted to. For three days after the operation he had only brandy and essence of meat, and afterwards beef tea, milk and finely chopped meat.—(*Vet. Record.*)

CEREBRITIS (?) [*By W. G. G.*].—With an interrogation after the title of his article, the author records his case, remarking that cases of this disease are said to be rare and verified only by post-mortem ; or, again, that it is often mistaken for meningitis. Whatever his case was it was followed by recovery and may prove interesting. A powerful animal had assisted another to remove a heavy traction engine and had done his work well, when in the evening he refused his food, became excited and kept pawing with his fore feet and raising the hind legs as in stringhalt. Seen the next day, he is semi-comatose, pulse 24 and full, temperature 105° , respiration irregular and stertorous, with complete amaurosis. He attempted to eat, had full movements of the jaws, great difficulty in swallowing. He carries the head low, swaying from side to side. At times he becomes excited, rushes forward and pushes against the wall. Oleaginous purgative, cold applications on the poll, and perfect quietness were prescribed. Bromide of potassium and extract of belladonna were administered whenever he had symptoms of excitement and great uneasiness. In 24 hours improvement was marked ; the blindness had passed off. The condition gradually improved. In 48 hours the temperature was normal. He was, however, weak and showed some muscular twitchings. Tonics were then prescribed. In a fortnight the horse was working.—(*Vet. Record.*)

A DEFERRED FRACTURE.—Under this title a correspondent of the *Record* reports a case in which the displacement of the bony fragments did not occur until six days had passed away from the time the injury was received. It was in a horse which had a sand crack on one hind foot and now and then became lame from it. A few days of rest and a reset of the shoe was generally enough to remove the lameness. One day, he showed the same lameness, and at the same time a certain stiffness on one of his fore legs. Overlooking this new manifestation, which was explained by the owner, who said that he

had got loose the night before and perhaps had been tapped by another horse, the author prescribed the ordinary treatment used for the lameness behind, and two days after the horse was nearly sound behind but yet a little stiff in front. In a few days more he was ordered to work, but on the sixth day the reporter was called in a hurry and found the animal disabled, with a well marked case of fracture on the foreleg, for which he was destroyed. The fragments of the bone, which were denticulated and well fitting together, and the form of the fracture indicated why the displacement occurred only six days after the injury. Moral: never neglect inquiry as to a cause of lameness, especially with the history that it may be due to tapping from another horse. . . . Another no less interesting case is recorded by Mr. C. A. Legnair, which, however, did not have as fatal result. During operation for the removal of a large scirrhous cord, while the horse, secured down, was struggling, a report similar to the discharge of a pistol was heard and an assistant exclaimed that the near foreleg of the horse was broken. Notwithstanding, the operation was completed, and the horse attempted to get up. He was brought to his stable, where he went away apparently sound. The horse did not lie down for some time. A fortnight later, when Mr. S. saw his patient, his attention was called to a swelling on the near fore arm about the middle of the radius. Brought to the evidence of something serious, strict directions were given not to move the horse out of the stall until further orders, which were not given for two months. The animal has since done good work, "hale and hearty," but with a swelling on the near fore arm. . . . But what if the horse had laid down?

BRYONY POISONING [*By A. S. Anger*].—Finding no record of similar nature in any literature, the author published this interesting history of seven horses out of a stable of thirteen animals affected with the same symptoms: general stiffness with peculiar gait resembling that of laminitis, yet no throbbing at the plantar artery; stiffness more particularly affecting the muscles of the loins—this was more marked in one mare, which, "when made to get up, sat upon her buttocks, and so stiff were her loins that her fore feet were poised in the air for a minute or more as she tried to grip the ground. When standing she was like a semi-paralyzed animal; pulse 84, temperature slightly elevated, no injection of the mucous membrane, appetite good." On inquiry as to the cause of the owner, it was learned that the animals had eaten a considerable quantity of the *bryonia*

dioica, which had grown in the garden of the owner, and after being pulled from the ground had been thrown in the horse's yard, where the horses partook of it. A dose of physic, mustard and embrocations to the loins with diuretic medicines was the treatment resorted to. The mare which was the sickest had her loins blistered with cantharidine ointment. — (*Vet. Record.*)

DEPARTMENT OF SURGERY.

BY L. A. AND E. MERRILLAT,

of the McKillip Veterinary College, Chicago, Ill.

ANTISEPTIC WOUND TREATMENT (CONTINUED FROM PAGE 730).

Occlusive Wound Dressings.

In the preceding chapter all of the substances that are capable of carrying infection into the wounds of our patients were enumerated, and practical, easily-applied methods of rendering them innocuous were suggested. The importance of keeping these substances in mind in the treatment of each wound can not be too often reiterated; in fact, we will never reach the desired goal in antiseptic treatment until we learn to fear the very thought of touching wounds with any substance not perfectly sterilized. It is upon the extraneous bodies that energy must be exerted; the wound itself once aseptic will work out its own salvation.

Thus far we have met with no obstacle that would prevent the application of antiseptic treatment in all veterinary wounds. On the contrary, we still have an actual advantage over the human surgeon. We can sterilize the instruments, hands, dressings, antiseptic solutions, etc., quite as well and the wound and its environs better than the human surgeon can. But when we come to the task of applying a *strictly occlusive dressing* it must be admitted that our disadvantages are legion. The veterinary patient is large and restless and is unable to comprehend the necessity of nursing its own wounds; so here our ingenuity is severely taxed. So far as the extremities are concerned we can adjust occlusive bandages with some satisfaction, but for wounds of the trunk* there is no form of occlusive

dressing yet advised that even simulates perfection. The subject therefore naturally divides itself into :

- (1) Occlusive dressings for the extremities.
- (2) Occlusive dressings for the trunk.*

Occlusive Dressings of the Extremities.—The hoof, pastern, fetlock, metacarpus, carpus and forearm, together with the analogous regions in the hind extremity, can be safely bandaged. The only exceptions are (1) the hock under some circumstances, (2), the proximal end of the forearm, and (3) the proximal end of the tibial region. The materials best suited for the purpose are :

- (1) Unbleached muslin.
- (2) Red flannel.
- (3) Oakum and cotton.
- (4) Pine tar, and balsam of fir.
- (5) Dry antiseptics (powders).

Unbleached muslin and flannel are cheap enough for veterinary purposes and besides are in every way suited for the intended purpose. They should be purchased from the bolt and divided into sections three meters long, each of which is again torn into strips ten centimeters in width. A flannel section will make six bandages and the muslin from eight to twelve. The average cost of each flannel bandage will then be about 12 cents, and the muslin about $\frac{1}{2}$ cent. These fabrics when wet (they should never be applied dry) perfectly conform to the curves of the limb and therefore leave no entering channels for organisms. The rule is to first apply the muslin, then the flannel. The advantage of red flannel is that blood from the wound or from finger marks do not show as in white fabrics.

Oakum and Cotton.—The former will answer almost every required purpose in veterinary surgery, but has the disadvantage of being somewhat more costly than the latter. These substances are utilized to arrest hæmorrhage and to absorb the wound secretion as well as to make the dressing still more occlusive. They are of course held in place by the bandage material above mentioned.

Dry Antiseptics.—Iodoform, iodoform sugar, iodoform tannin, and boric acid are the most potent ones for the veterinary surgeon. Iodoform alone is somewhat expensive for general use, but in the form of iodoform sugar, which consists of iodoform one part, and pulverized sugar five parts, its cost is materially lessened without detracting from its potency. In fact the sugar actually augments its action for occlusive purposes, as

it forms an artificial scab, which prevents intrusion as well as the growth of organisms within a wound. They are applied by dusting over the wound and surrounding area just before the fabric dressings are adjusted, and the thicker they are applied the more perfect will they perform their mission. There are a number of others recommended, but it is indeed difficult to find one so effectual as iodoform sugar. Whether for sutured or open wound treatment its effects are equally leading. The unpleasant odor of iodoform is an objection, but if it is not permitted to touch the clothing its odor can be dispelled from the hands by washing them in vinegar or dilute acetic acid. Boric acid and iodoform tannin are also valuable agents for our purposes. The former is commendable for packing a large cavity while the latter is particularly indicated in dressing a large excoriated surface. It will form a thick impervious scab.

Pine Tar and Balsam of Fir.—Both, but especially pine tar, have many indications as adjuncts for dressings. In foot wounds they can be incorporated with the oakum and muslin so as to form the most perfect protection imaginable against infection. Their consistency as well as their antiseptic properties recommends them for this purpose. In other portions of the body they are indicated for all wounds that will not secrete profusely. It must never be forgotten that bandages are often required to perform the function of drainage by absorbing the wound secretions, in which instance they should be porous. But when the secretions are limited the dressing should be made as occlusive as possible and tar is the one material for the purpose.

Hoof Dressings.—In city practice especially, nail pricks, hoof cracks, corns, quittors and coronet treads are very common foot wounds. It is not the intention here to transgress into the domain of their surgical treatment any farther than is absolutely necessary to render the subject of occlusive dressings comprehensible. The reader might first be reminded that in dealing with each of these lesions it is the duty of the surgeon to patiently make the wound perfectly sterile and then protect it perfectly. This feat is neither an impossible nor impractical undertaking and must therefore soon replace the old method of dealing with foot wounds. The foot of the horse is in such close contact with the dirtiest part of the stable—the floor—that its wounds are easily infected if not protected properly. Open wound treatment or even treatment with only nominal bandaging is no doubt the one reason why foot wounds are so

prone to linger indefinitely. That the healing period of all those suppurating hoof affections can be cut short is no speculative assertion, but a demonstrable fact. Failures can usually be traced to the difficulty of reaching every recess of the infected area. Of course the surgeon's ingenuity will often be taxed to accomplish the task of sterilizing every recess of a foot wound, and on account of the frequent restlessness of the patient it is not surprising that the job is often given up in despair or only half completed. Besides the restless patient we have hæmorrhage to contend with in paring nail pricks, corns, etc. But these inconveniences must be overcome at all hazards. We should begin now to prevent lingering if not fatal terminations from simple wounds by casting aside the methods which savor so much of carelessness. The existence of serious obstacles is admitted, but that the obstacles cannot be surmounted is not admissible. The extremely restless patient can be cast, one less restless can be subdued with a twitch, cocaine to the plantars and by morphia narcosis, and the hæmorrhage can be entirely arrested with an Esmarch bandage. In this way the nail prick or corn can be pared to its remotest destination.

In dealing with simple nail pricks, which means those which have not pierced the tendon nor bone, the technique is as follows:—Cleanliness and asepsis in mind, the shoe is removed and the sole and frog pared smooth. An Esmarch bandage is then applied and the wound is traced to its destination. The shoe is then replaced and the wound and surroundings patiently irrigated with a one per cent. mercuric chloride solution and then packed with iodoform or iodoform sugar. The sole is then anointed with tar and covered with a large wad of tarred oakum. The latter is kept in place with a piece of sheet-iron fastened beneath the web of the shoe. This may be made still more occlusive by encircling the whole foot with tarred fabric bandages. Such a dressing need not be removed until the wound is healed. Here we must, however, be governed by the circumstances. Having perfectly traced the wound we must decide as to the time it will require to regenerate, and then leave the bandage on accordingly.

For more serious punctures the technique is the same except in the change of the bandage. There is always considerable hæmorrhage following the removal of the Esmarch bandage in deep seated nail pricks. The blood which finds its way to the surface of the dressing will then form an entering channel

for pathogenic organisms if an early change is not made. I have frequently suspected this as the cause of failures and the suspicion has been confirmed by better results from a new method. The first dressing of sterilized and antiseptic oakum and fabrics is applied after the operation for the purpose of arresting the hæmorrhage. In twenty-four to thirty-six hours the patient is taken to a scrupulously clean place, the temporary bandage removed and the whole foot and wound again patiently disinfected with a strong mercuric chloride solution. The wound is then dusted with iodoform (there is no hæmorrhage now to interfere) and covered with tarred oakum and with layer upon layer of tarred muslin bandages. If the wound is one that will secrete profusely, as, for example, when the navicular sheath is punctured, the first layer of oakum is not tarred, but is made safely pure by sterilization. In this condition it is capable of absorbing the secretion—a property which cannot be expected of tarred oakum. On the sixth or seventh day it is removed and readjusted as above described. If the patient is improving and the secretions do not appear upon the surface and in the absence of foul odor such a bandage may even remain on much longer, but the sixth day is the usual time for the appearance of these symptoms. After the second dressing the wound is usually safe from septic processes and may then be dressed with less precision, and if astringent remedies are then indicated they should be applied to the oakum.

For quittor and other operations involving the wall, coronet, or lower pastern region, the same principle applies and the technique need not vary. The clue to success in performing aseptic foot operations is found in applying first a bandage to arrest the hæmorrhage and then the permanent one, twenty-four to thirty-six hours later.

Bandages of the foot are held in place by wrapping them round and round with coarse twine, tarred to make it more adhesive, and as horses are very destructive to foot dressings, the whole should be protected with a loose wrap of coarse material, or what is still better with a leather boot. Without this precaution bandages are often worn through on the second day, and on the hind feet they soon become soaked with the patient's excretions.

Fetlock and Pastern Dressings.—Accidental wounds and neurectomy wounds are the common lesions of this region, which is the easiest region of the horse to protect perfectly. A

wad of oakum, a bandage of muslin three meters long and a flannel one the same length, all well soaked and wrung out moderately in mercuric chloride solution (one per cent.), applied so as to fit the form of the leg neatly and then bound with numerous wraps of tape or cord will protect wounds of this region for a week or more without change. The only reason for changing such a bandage earlier would be the appearance of wound secretions at its surface, or in the case of hæmorrhage at the time of application. For simple incisions, as in neurectomy, the muslin fabric may be tarred, for if properly performed there will be no perceptible secretion.

Knee Dressings.—Broken knees from stumbling, other accidental wounds and tenotomy of the carpal flexors are the wounds of the carpus requiring occlusive dressings. For this region the same materials as for the fetlock are used, but the bandages should be at least six meters long. Short bandages are more likely to become loose and fall off. The patient must be kept in the standing position, and if the wound is sutured a wooden or sheet iron splint should be applied to the flexion surface. For broken knees the wound is first covered with a thick layer of iodoform sugar, then with oakum soaked in mercuric chloride (one per cent.), and subsequently with tarred muslin bandages six meters long bound down with numerous wraps of tape. The oakum may be tarred or not, according to the amount of secretion expected.

Forearm Dressings.—In applying dressings to this region the bandages should be made to cover a large area, and then bound with abundance of tape to retain them. The wound of median neurectomy cannot be bandaged, and therefore the usual wounds of the region are accidental ones requiring materials to suit each case. The patient should be kept in the standing position.

Hock Dressings.—Some patients will complacently accept a hock bandage, while others for no visible reason will resist their presence by repeated and forcible flexion until the whole affair is hopelessly distorted. The attempt is always an experiment, as there is no telling which patient will or will not resist. The more simple wounds might be treated as well as possible without bandages, but when bandaging actually becomes necessary the strips should be narrow and long, and made to cover a large share of the metatarsus below and the lower portion of the tibia above. It should first be wound around the metatarsus, then gradually upward to the lower third of the tibia, and completed

by encircling a figure eight several times over the joint. The retaining cords should not press forcibly upon the tendo-Achilles.

Tibial Dressings.—This region is also difficult to dress with bandages, and with the exception of the distal end it might well be placed in the same category as the shoulder, stifle, etc. Just above the hock, however, the seat of tibial neurectomy, a bandage can be applied. The secret of preventing resistance lies in the proper application of padding to the tendo-Achilles. Two cylindrical pieces of oakum should be placed on either side of the tendo-Achilles, between it and the perforans muscle, so as to prevent pressure directly upon it.

Metacarpal and Metatarsal Dressings.—These regions are readily bandaged under all circumstances and necessitate no deviation from the general rules.

General Rules for the adjustment of occlusive dressings for the extremities:

(1) Make bandages no shorter than three meters and no longer than six meters, and about ten centimeters wide.

(2) Always apply them wet with strong antiseptic solutions. Dry ones cannot be made to fit the curves of the legs.

(3) Retain them with abundant wrapping with twine or tape. Pinning, or simply applying a wrap or two of twine, is not sufficient.

(4) When they become impregnated with blood after an operation they should be changed in twenty-four to thirty-six hours and a permanent occlusive one applied.

(5) Make them more occlusive with tar, except when they are expected to absorb secretions.

(6) Change them as soon as wound secretions appear at the surface, as such secretions form an entering channel for organisms.

(7) Bandage neatly. It matters not how neatly or intelligently an operation is performed if the bandage is not neatly applied the whole procedure may suffer from adverse criticism.

(8) Never permit the bandage to interfere with the proper drainage of a wound. An improperly drained wound in veterinary patients will seldom remain aseptic.

(9) Oakum and bandages should be soaked with mercuric chloride solution no weaker than 1-500.

(10) Always cover a liberal surface.

(To be continued.)

FOR ABSCESES, take boric acid and acetanilid, equal parts, and glycerin to make a thick paste ; spread on a soft cloth and apply.

SURGICAL ITEMS.

Application of Plaster of Paris Bandages.—Hard bandages, such as are made with plaster of Paris, are used so frequently in our practice that a word about them can never go amiss. Every veterinarian has his particular method of adjusting them, and if the results have been in every way satisfactory no deviation from accustomed methods is advisable. It is always much better to follow accustomed methods that have proven satisfactory than to experiment with new ones. One point never to be forgotten in their application and which is probably the cause of failure in many instances, is that such bandages should be hardened and perfectly unresisting as soon as the work of applying them is completed. If a plaster of Paris bandage requires even several minutes to become hard the movements of the patient may “unset” the bone. The following method will give the desired results: Provide yourself with abundance of cheese cloth ripped into bandages 6 meters long and 10 centimeters wide, soak and roll them in a thin solution of plaster of Paris and let them remain in the solution while the patient is being prepared for the application. When the bone is properly set carefully apply one of the bandages over the whole area to be covered. Then in another container make a thick solution of the plaster and add to it 30 grams (one ounce) of powdered alum. Plaster this thick solution thickly over the whole area and quickly (it will “set” rapidly) apply the second bandage. Over this second bandage plaster another coating of the plaster of Paris and alum solution, freshly made again as the first will now be too hard to use. Repeat this until the desired thickness is obtained. When the last bandage is applied the whole bandage will be very hard and displacement of the bone will then be impossible. Plaster of Paris bandages should always cover a liberal surface. For the pastern the lower two-thirds of the metacarpus and the whole foot must be included. For the metacarpus the lower third of the radius, carpus and fetlock must be covered, etc.

To remove such a bandage soak it in dilute acetic acid or vinegar which is a perfect solvent for plaster of Paris. Pour the acid along the line to be cut and cut the cloth with a knife, layer after layer.

A plaster of Paris bandage should never be left upon a horse's leg longer than four weeks. If the healing has not progressed to a safe point another softer one is applied. The restlessness of the larger veterinary patients causes bandage

necrosis in almost every case, and therefore at the end of four weeks the necrotic spots should be exposed and treated.

—(L. A. M.)

Osteoma of the Superior Maxilla.—The case of osteoma of the maxilla reported from Professor Dewar's surgical clinic by veterinary student J. J. O'Connor, in the January *Veterinarian*, page 904, opens up the very interesting question of origin of these mysterious tumefactions. In a supplementary note Professor Stockman unhesitatingly asserts that their cause is "still unknown," and apparently clinches the assertion by referring to their occurrence in old horses, in which instance proliferation of cells that have lain dormant for years can not readily be accounted for.

Let us see if a glance at the osteology of the region will not materially lead us to some logical conclusion. The bone of the region (the jaw) consists of two comparatively thin plates enclosing the deep and large alveolar cavities. Now, if we consider that within these cavities two sets of teeth—temporary and permanent—develop from very small to very large and hard bodies which eventually find their way into the oral cavity by sheer force of their expansion, is it a wonder that this thin incasement (the bones) occasionally suffers?

Furthermore, osteomata of the maxilla most frequently occur over the third molar—the last of the temporary teeth to erupt. This is due to the demonstrable fact that when the third molar seeks admission to the level of the arcade it occasionally finds its way blocked by the narrowness of the space between the second and fourth teeth, both of which have previously erupted and are now firmly located. Thus the force of its continued expansion is felt at the other extremity and an osteoma results. In much the same manner osteomata occur over the first and second molars from the resistance offered by their temporary analogues and probably also, like the fourth, which is rarely effected, from obscure forces. The fifth and sixth are never the cause of such processes because of their remoteness from the skull plate. It is not rare to find two or more of the anterior molars involved simultaneously in the causation of these tumefactions and not rarely the condition is bilateral.

In describing the semiology, Mr. O'Connor states: "There *seemed* to be a wider space than usual between the second and third molars." As perfect contiguity is indeed seldom interrupted in the dental arcades of the horse the words "wider space than usual" make the assertion rather confusing. But

the point I wish to make in this connection is that if the space referred to had been carefully examined it would have been seen that its gingival width was much wider than the table width, showing that either the second or third molar—most likely the second—was not in a straight line with the axis of the jaw, and with the fourth formed a wedge-shaped space for the third molar. "For the past year this tumor had been growing" says the writer. Quite so, when one considers that during the same time the third molar was also rapidly growing and was making an effort, against great odds, to gain the level of the arcade.

As regards those occurring in older animals I must confess having failed to demonstrate any similarity whatever to those occurring in connection with dentition. When not caused by productive periostitis (traumatic) the tumefaction could always be traced to an odontoma or to dental necrosis (caries, if you wish). In view of their histological characteristics the attempt to place all of these tumors among the teratomata is hardly justifiable.

The large number of these cases appearing at the dental clinic of this college has been the incentive for a careful research into their origin. It was only after two post-mortems (the animals having died from other causes) that the true nature of the abnormality became apparent. With this clue the wedged condition of the third molar was always thereafter easily detected by palpation or inspection in the recumbent position, and in trephining a large opening in the tumefaction the fang is found to be from 8 to 15 millimeters too long.

—(L. A. M.)

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MANUAL OF PRESCRIPTION WRITING AND POSOLOGY. Prepared for Students and Practitioners of Veterinary Medicine. By Harry D. Hanson, D. V. S., Associate Professor of Theory and Practice at the New York-American Veterinary College. Published by the Author, 160 Eldridge Street, New York.

We had no idea that the little book bearing the above title, whose prepararion has been so long announced, would prove to be such a valuable work when completed. Now, as it lies before us we find it crowded from cover to cover with innumerable tables and statements that should be but are not familiar to the practitioner, with the thousands of other things that he must familiarize himself with.

The genesis of the work gives the reasons for and the man-

ner of writing prescriptions in a proper manner, analyzing their construction from the invocatory *R* to the signature, giving enough of medical Latin to enable practitioners to write thoroughly correct and grammatical prescriptions. As a reference work a vast amount of material of the kind veterinarians want to know about fill subsequent pages, and include the principles of combining drugs, examples of dangerous and erroneous combinations, a chapter on solution, with tables of solubility of the chief veterinary drugs. Weights and measures form a most complete chapter, and include every phase of the subject, while officinal preparations are generously treated of in the next section. Posology is discussed with reference to the various channels by which the medicines are conducted into the system, and the tables of dosage are both complete and comprehensive. Fifty pages are devoted to a vocabulary, from which the student can abstract a good general definition of all Latin and medical phrases usually employed. An appendix of favorite prescriptions of well-known practitioners completes the volume, and a reference to these brings to the reader many happy combinations that experience has taught the author are valuable in particular conditions.

The author is to be congratulated upon having produced from what seemed a simple subject a work which we venture to say will be worn out faster by constant handling than any other book in the veterinarian's library.

OUTLINE OF THE ANTISEPTIC TREATMENT OF WOUNDS FOR VETERINARIANS. By H. Frick, County Veterinarian of Hettstedt, Germany, Translated by Alexander Eger, with annotations by A. H. Baker, V. S. (Chicago Veterinary College), and L. A. Merillat, V. S. (McKillip Veterinary College). Chicago: Alexander Eger, publisher, 1900.

Following closely upon Dr. Peters' translation of Fiscoeder's "Meat Inspection," Mr. Eger gives the veterinarian another valuable little volume upon a subject that is just now receiving a great deal of attention at our hands. For many years antiseptics were regarded by us as a most excellent and scientific discovery—for the practitioner of human medicines, but it was unfortunate that its general adoption was impracticable and a farce in veterinary medicine. It was thought that wound treatment in the domestic animals was so radically different from the same subject in our sister profession that antiseptics could only be aimed at, and that surgery would have to continue to be without its powerful effects. Within the last year veterinary sentiment has taken a radical change, and our literature is teeming with extemporaneous articles upon the subject. For

instance, it is being very thoroughly and practically discussed in the REVIEW by Dr. Merillat in the "Department of Surgery," while almost every association meeting has a paper bearing upon the subject.

The work before us, therefore, is very *apropos* and as the German text is enlarged upon by two well-known American-educated veterinarians, we feel the greatest confidence in endorsing the volume as being up-to-date and reliable in every sense, and one which no progressive man can afford to have absent from his library.

SCIENTIFIC HORSESHOEING, for Levelling and Balancing the Action and Gait of Horses and Remedying and Curing the Different Diseases of the Foot. By William Russell, Practical Horseshoer. Cincinnati: The Robert Clark Co., 1899.

The fourth revised and enlarged edition of this work, which is regarded by the horseshoeing fraternity as the most advanced text-book of their handicraft, has been forwarded to us by the author, and upon a careful perusal we find it a work of much value and of real scientific merit. It has been standard among horseshoers for years, and the pains and skill which the author has given to the details of its compilation reflect the greatest credit upon him. There are 450 illustrations, many of the anatomical plates being colored, and of a higher order than those usually found in veterinary works, while the illustrations of pathological feet, all of which are in the collection of the author, who has secured them from time to time through his long career as a horseshoer, are well chosen and will compare favorably with anything in our literature. The author has had a wonderful experience in the higher art of shoeing, has given a vast amount of study and thought to the subject, which he conveys to his readers in a clear and concise manner in the nearly 300 pages which comprise the book. The veterinarian can learn a great deal from Prof. Russell's treatise, and we commend it heartily to our readers as the most advanced representative of a profession which mingles so closely with the practical side of our own.

CORRESPONDENCE.

STILL WIPING THE FLOOR WITH THE ARMY VETERINARY
SURGEON.

Editors American Veterinary Review:

DEAR SIRS:—The following circular of information has re-

cently been promulgated by the Department of War:

CIRCULAR 55,

HEADQUARTERS OF THE ARMY, ADJUTANT GENERAL'S OFFICE,

NOVEMBER 23d, 1899.

The following decisions have been made and are published to the Army for the information of all concerned:

1. *Courtesies to be shown Acting Assistant Surgeons by enlisted men of the Army.*—Acting assistant surgeons are entitled to the same protection in their positions and the same respect and obedience from enlisted men as commissioned officers.—(Republication of Par. 1553 A. R. of 1899, approved by Sec. War, Nov. 17th, 1899.)

2. *Status and Allowances of Veterinarians.*—A veterinarian appointed under the act of Congress approved March 2, 1899, is not a commissioned officer or an enlisted man, but a civil employee.

A veterinarian of the second class is entitled to all the allowances or emoluments of a Sergeant Major, other than his pay proper, which is fixed by law, the same as if he were an enlisted man.—(Decision Sec. War, Nov. 7th, 1899—290576 A. G. O.)

The status of the army vet, as may be seen from the above, has been defined, and the knife has been again buried in his unresisting anatomy, but no blood drawn, as he by this time is bloodless. The status of the contract doctor employed temporarily by the Surgeon General (possessing no more education, technically or otherwise, than the vet) is redefined presumably by way of contrast, but was it necessary? The new definition of civil employee places the vet in a very unenviable position, both as regards his work and social standing. Officially being a civil employee, his efforts from a professional standpoint are productive of less results now than they were formerly, when he was ranked as a sergeant major (*vide* his warrant), and had some little authority. Now, having none, he is but a *thing*, with less influence for good in the service than a troop farrier, who is a grade above a private, anyhow, and certainly outranks the vet, who is nobody. Then, again, the spectacle of a vet of the second class, a civil employee, drawing helmets, riding boots, chevrons, stripes, and other military equipments that he is not allowed to wear, is without parallel in any other civilized service that we know of. Socially, an army civil employee, from a military point of view, is a *dog*.

How the decision in the above circular came to be given we do not know, but it needs no Daniel to read the handwriting on the wall, and plainly shows the estimation in which the vet profession is held by the War Department, regardless of the good it might do if recognized. By this decision the veterinary service in the army has been reduced to the minimum in use-

fulness, and its members placed one grade below that of a "cook's police" (military kitchen helper)—neither an officer nor an enlisted man, but a "civil employee" of a line regiment, a maverick, a "what is it," an intelligent, thinking, specially trained being without a voice, simply a stable attaché without a single right, without "protection in his position," having the respect of nobody, shunned by citizens on the outside of the service, who gauge him by his official standing, he being of the army and still not of it (sounds like the stuff one reads in the Bible), and finding him an outcast are afraid of him socially, and supposed officially to be deaf, dumb and blind.

What is wrong anyhow? One is tempted to ask, is the word "vet" equivalent to "mad dog" when applied to some harmless canine? Is the veterinary profession so low down in the scale of professions that it acts on the service as a red rag does on a bull? Is a veterinarian a social leper, or is the old veterinary canker which has afflicted the army for years so hard to heal that it will have to be taken out with the knife and replaced by new tissue? If so the sooner the operation is performed the better. In the meantime the fight for recognition will continue until success is reached.

Ye aspirants for military honors, struggling for a place in the army because you are deluded into thinking the service has been improved, believe me when I say that it has not. A few of the positions receive a few dollars a month more than the others; otherwise the conditions are worse, and this is especially so since the decision given above has been published.

The decision rendered by the Adjutant General's Office can be made to be more productive of good than anything that has happened to the army veterinarian or anything that he has tried to accomplish in the past ten years. This circular speaks for itself, and when the meaning of it is intelligently placed before the congressional committees it will undoubtedly have a good effect in advancing our interests.

Yours truly,
VERITAS.

SECTIONAL WORK IN THE A. V. M. A.

Editors American Veterinary Review:

DEAR SIRS:—The *Journal* takes occasion in its November issue to again voice its opposition to sectional work in our national organization. With the development of veterinary science the energies of the different members of the profession have been exerted along various lines; some are engaged in the

control or eradication of contagious diseases, some enter politics and become candidates for mayor, some take up meat inspection or enter the army veterinary service, while 75 to 80% enter private or general practice. These variations in work tend to draw us apart, and it is well that there should be some central rallying point where we may meet on common ground as a fraternity. Such is the A. V. M. A.

Article II of its constitution reads: "The purposes and objects of the association are, to contribute to the diffusion of true science and particularly the knowledge of veterinary medicine and surgery." Sanitary medicine, politics, meat inspection and contagious diseases are not specifically mentioned, and originally our programmes contained little of these, but State and sanitary medicine have more recently undergone such rapid and important development that they soon assumed a far more prominent place in our meetings and ere we were aware murmurings were heard that these were pushing aside the topics of interest to the general practitioner, the practice papers bringing up the rear end of the programme, their discussion was omitted for want of time and finally they were read by title. At Nashville the general practitioners asked for sectional work, the sanitarians, by parliamentary technicalities, avoided the issue. The practitioners were on the alert at Omaha and injected clinics into the programme. They went to the clinics prior to the regular convening hour and stayed there till ready to go elsewhere—they held a section on clinical surgery. They repeated the act at New York, and had very interesting section work.

Now, the sanitarians are murmuring, but the *Journal* hesitates to admit that the clinics are at the bottom of its woes, and tries to lay the whole blame on Dr. Berns' clam-bake. The managing editor of the *Journal* should be frank and state editorially as he has done elsewhere that he disapproves of clinics at the meetings of the A. V. M. A. The *Journal* says that only sanitary science is sufficiently developed, has enough intelligence or a sufficiently important theme to undertake sectional work.

More than 50% of the members present at New York would say that the section on clinical surgery did very satisfactory work last September. Other sectional work in the A. V. M. A. has proven more or less successful. The Association of Veterinary Faculties, which the *Journal's* editor nursed tenderly in its infancy, has operated throughout its existence as a section

of the A. V. M. A. Its minutes and papers have appeared in the proceedings of the A. V. M. A., and were printed at the expense of the latter, its meetings were held at the same time and place, and it has been granted and has accepted all the rights and prerogatives of a section. The same is true of the Association of Experiment Station Veterinarians, and the *Journal* has approved the relation. So the *Journal* approves of sectional work in the Association of Faculties, of Experiment Station Veterinarians, and thinks the sanitarians competent to run a section for a day or so, but deems the practitioners unfit to undertake anything of that nature. The *Journal* avers that these common everyday practitioners must have larger and longer doses of sanitary medicine, whether they desire it or not. We have a three-days meeting. Why not group the subjects together, put them in sections, have a half day of sanitary medicine, then a like time to veterinary education or to general practice? Let each paper have its time and duration fixed in the programme, and then carry it out faithfully, so that any one interested in a given topic would know when to be present. Have it understood that while work of a certain kind is going on those who do not feel directly interested may attend or not, just as they please. They will probably do that anyhow, but the other party had as well not become irritated over it. If, while a discussion is taking place on some sanitary subject, a few general practitioners wish to go out quietly and congregate in a group elsewhere and talk over or illustrate some operation which may directly benefit them, whose affair is it? So far as known to the writer, the practitioners have paid the bills for the clinics. The practitioners have at no time entered any protest against the sanitarians meeting where they please, while clinics are going on, and discussing any topic they like. The question is not one of sectional work—we already have it. It is not a question of whether the general practitioners know enough about sanitary medicine or not—that is a matter of their own business. It is not a question of sufficient time to properly carry out our programme, for it can readily be done in the time now consumed. It is a question of definitely grouping and fixing the time for each group and each paper in the group, and permitting the sections and sectional work already formed to go about their work promptly and methodically and permitting existing sections to carry on their work concurrently or consecutively as may be desired by those sections. The familiar “hashed” programme with tuberculosis, colic

and worms indiscriminately mixed, is not inviting because a member wishing to be present during the discussion on tuberculosis and being a trifle early or late (no definite time for the discussion having been fixed) gets colic or worms instead, and by the time the next paper in which he is interested is presented he has probably become weary if not comatose.

By the time the *Journal* for December appears, we hope it will have discovered that sectional work has been in operation for a number of years, and that, if the section on sanitary medicine will grant the general practitioners moderate freedom of action, allowing them to carry out such a programme as they may deem of greatest importance to themselves, the practitioners cheerfully returning the compliment, the programme would move so harmoniously as to remove all complaint of lack of time, more general practitioners would attend, the section on sanitary medicine would have larger and more attentive audiences and the A. V. M. A. would contribute far more "to the diffusion of true science and particularly to the knowledge of veterinary medicine and surgery." PRACTITIONER.

WHO AMONG OUR SCHOLARLY VETS CAN SUPPLY THIS LINK?

INDIANAPOLIS, Ind., Jan. 17, 1900.

Editors American Veterinary Review:

DEAR SIRs:—I make bold to ask for some information on the recommendation of Dr. Pritchard, of this city, whose card I enclose. I am engaged in a search for the origin of the word "Hoosier," and am trying to trace the probability of its derivation from "hoose," which you know as the local English name of the disease caused by *strongylus micrurus*. Can you tell me whether in England an animal with this disease is known in vernacular as a "hooser" or "hoozer," and if you are not familiar with the dialect or have no handy reference book for it, can you refer me to anyone in England who would be apt to know? This may seem a crazy sort of inquiry, but if you can give me any light I will be under great obligations.

Yours truly,

J. P. DUNN,
Editor *Sentinel*.

CORNEAL ULCERS.

ITHACA, N. Y., Jan. 22, 1900.

Editors American Veterinary Review:

DEAR SIRs:—On page 764 of January REVIEW I note a

treatment for corneal ulcers by nitrate of silver solution or liquid carbolic acid.

Permit me to suggest what I have found a better plan.

Produce local anæsthesia by cocaine. Take a stick of nitrate of silver (or still better a cone of silver nitrate with 5% silver chloride) and pencil the ulcer till white. If the cone is used, carefully push the tip through the thinned corneal wall at the deepest part of the ulcer. If the wall appears too thick or the ordinary stick silver nitrate has been used, puncture the anterior chamber through the ulcer with a small bistoury. A gush of aqueous humor will follow, and with the decreased intra-ocular tension the inflammatory symptoms promptly subside. Antiseptics (solution of silver nitrate, pyoktanin, etc.) may later follow as may be indicated.

Very truly,
W. L. WILLIAMS.

ACTINOMYCOSIS IN EXPORTED CANADIAN CATTLE.

DOMINION OF CANADA, DEPARTMENT OF AGRICULTURE,
OFFICE OF THE CHIEF INSPECTOR OF STOCK.

MONTREAL, December 20th, 1899.

Editors American Veterinary Review:

DEAR SIRs:—My attention has been called to a mis-statement which appears in the report of the paper read by Dr. J. B. Wright on the subject of "Actinomycosis," at the Missouri Valley Veterinary Medical Association, in the December number of your admirable journal, at page 670. Dr. Wright is reported as having stated that "three per cent. of the cattle shipped from Canada to England show the lesions" (of actinomycosis).

By referring to my annual reports, which are published in the Blue Book of the Department of Agriculture, it will be seen that from November 1, 1897, to November 1, 1898, out of 117,428 exported from the maritime ports, the inspectors rejected 114 head. During the same period, 1898-99, they rejected 71 out of 111,948, and during the same period of 1898-99 they rejected 94 cattle out of 97,014 head exported.

As a matter of fact, any animals showing even slight lesions of actinomycosis are not allowed to be shipped from Canadian ports.

The insertion of this for the purpose of stating the facts will be appreciated by, Yours truly,

DUNCAN MCEACHRAN,
Chief Inspector for Canada.

SHALLER says pilocarpine will increase the milk supply.

SPRATT STOPS IMPORTING DOGS.

No. 245 EAST 56TH ST., NEW YORK, Dec. 22d, 1899.

Editors American Veterinary Review:

DEAR SIR:—We have addressed a letter, of which the enclosed is a copy, to the Secretary of the American Kennel Club. If you consider the subject matter of sufficient interest to give it publicity in your columns please do so. Respectfully,

SPRATTS PATENT (AMERICA) LIMITED.

DECEMBER 20TH, 1899.

Secretary American Kennel Club, 55 Liberty St., New York City:

DEAR SIR:—The blame for delay, etc., in a number of cases of importation of live stock into America having been unfairly attached to us, we decided, after careful consideration, to abandon this kind of business, believing that it would in the end be more satisfactory if we recommended customers to intrust their property to one of the regular express or forwarding companies. We had found that intending exhibitors frequently allowed a very narrow limit of time between date of arrival of vessel carrying animals intended for exhibition and the show date, and that one failure to realize their anticipations, due to no fault of ours, prejudiced our business as manufacturers more than a hundred successes. We have of course in the past brought into America a very large number of famous prize winning dogs and birds, and have received many excellent testimonials therefor.

Since May last, any report to the contrary notwithstanding, we have conducted no importations of this kind whatever. Respectfully,

SPRATTS PATENT (AMERICA) LIMITED.

SOCIETY MEETINGS.

THE OHIO STATE VETERINARY MEDICAL ASSOCIATION.

This association convened in annual session in the Board of Trade office, Columbus, Ohio, Jan. 8, 8.15 P. M. Called to order by President W. Shaw, of Dayton. Roll-call showed the following to be present: F. E. Anderson, Findlay; J. H. Blattenburg, Lima; L. W. Carl, Columbus; H. J. Detmers, Columbus; P. A. Dillahun, Springfield; C. B. Frederick, Columbus; J. E. Foster, Coshocton; W. C. Fair, Cleveland; W. H. Gribble, Washington C. H.; T. B. Hillock, Columbus; R. C. Hill, West Alexander; D. C. Hannawalt, Greenfield; W. C. Holden, Delphos; Neil B. Jones, Washington C. H.; C. E. Leist, Columbus; S. D. Myers, Wilmington; H. J. Rowe, Sandusky; Walter Shaw, Dayton; E. H. Shepard, Cleveland; David S. White, Columbus; W. B. Washburn, Tiffin; D. B. Cliffe, Marion; O. V. Brumley, Townwood. After the reading and approval of the minutes, the nomination and election of officers

for the ensuing year was taken up. Drs. S. D. Myers, L. W. Carl and N. B. Jones were nominated for President, resulting at the third ballot in the selection of Dr. Myers. Drs. J. E. Foster, C. B. Frederick and P. A. Dillahunt were named for First Vice-President, also requiring three ballots to select Dr. Dillahunt. For Second Vice-President, Dr. Anderson; Third Vice-President, Dr. Hill; Secretary, Dr. Gribble; Treasurer, Dr. Hillock.

President Shaw thereupon declared the following to be the association's officers for the coming year:

President—S. D. Myers, V. S., Wilmington.

First Vice-President—P. A. Dillahunt, V. S., Springfield.

Second Vice-President—F. E. Anderson, V. S., Findlay.

Third Vice-President—R. C. Hill, V. S., West Alexander.

Secretary—W. H. Gribble, D. V. S., Washington C. H.

Treasurer—T. B. Hillock, V. S., Columbus.

Dr. H. J. Detmers gave an interesting talk on his experiments with the virus of anthrax, showing its vitality, having produced the disease with virus which had been in his possession thirteen years and four months. He also gave his method of treatment of infectious pneumonia of horses, treating 60 cases, 58 of which recovered and recovered very rapidly.

A number of communications were read and disposed of as the association thought best.

The chair appointed Drs. Shepard, Anderson and Blattenburg as a committee to audit the books of the Secretary and Treasurer, after which the association adjourned until 8 A. M. Tuesday.

Tuesday, Jan. 9, 8.00 A. M.—Meeting called to order by President S. D. Myers, whose maiden opening address was well received.

New members proposed were: D. B. Cliffe, Marion (Cincinnati, '93), P. A. Dillahunt and Neil B. Jones, vouchers; O. V. Brunley, Townwood, O. (O. S. Univ., 1897), D. S. White and C. B. Frederick, vouchers. Each was ballotted upon in turn, and both declared elected.

The report of special committee appointed to solicit for this association the privilege of naming the to-be-appointed veterinary examiner, reported that the appointment was all politics, and that reason, moral suasion and ability counted for naught unless accompanied by a political pull. It was decided to apply a little politics in the suggesting of the name of one of our able members. Arguments *pro* and *con* then commenced on any additions to our present veterinary law. It was the same

old story—oil and water don't mix; one contending the association did nothing, while another that the association did all it could possibly do. It is a noticeable fact, that those veterinarians who shout the loudest about the association doing nothing, are those very ones who are not members, and have never subscribed one dollar towards paying expenses that have already been incurred. Follow up your shouts and suggestions, boys, by a little of the needful.

Drs. Hillock and White were appointed a special committee to watch any veterinary legislation during the present session of the legislature.

Dr. Jones suggested that the President and Secretary formulate a regular programme for our next meeting, giving subjects, names of writers, etc. The same was ordered done.

The Auditing Committee reported as follows: "We, the authorized committee to audit the books of the Secretary and Treasurer, report having found at the close of the session of Jan. 13, 1898, a balance on hand of \$283.04. At the session of Jan. 11, 1899, the receipts were \$34.00, expenditures \$45.15, leaving a balance at close of that session of \$271.89. At the session of July 12, 1899 (at Lima), the receipts were \$17.00, expenses \$6.35, leaving a balance of \$282.54. At this present session (Jan. 8 and 9) the receipts have been \$29.00, expenditures \$24.50, leaving a balance at the close of this meeting in the hands of the Treasurer of \$287.04. E. H. SHEPARD, F. E. ANDERSON, J. H. BLATTENBURG, *Committee*."

The Chair appointed the following committees: *Contagious Diseases*—D. S. White, J. H. Blattenberg, Neil B. Jones. *Veterinary Progress*—W. Shaw, F. E. Anderson, L. W. Carl.

In reference to a meeting place for our semi-annual session it was decided to leave this to the call of the President and Secretary, and that if the American Veterinary Association met in Detroit or some other convenient city, that we as an association have no meeting, but instead meet with the National body.

The remainder of the session was taken up with the reporting and discussion of interesting cases. The next annual session will undoubtedly be held in the Veterinary Department of the Ohio State University, where a splendid biological and pathological exhibit can be viewed as well as clinical work arranged for; this together with the University's Museum of Natural History, chemical laboratory, and other scientific exhibits, should be the means of bringing together a goodly number of veterinarians, and we look forward to this session as one

of profit as well as pleasure. Keep it in mind—Ohio State University, Jan., 1901. WM. H. GRIBBLE, D. V. S., *Secretary*.

ONTARIO VETERINARY ASSOCIATION.

The annual meeting of this association was held in the Veterinary College, Toronto, Canada, on Friday, Dec. 22, 1899, at 11.15 A. M.

In the absence of Mr. S. Sisson, the President, the First Vice-President, Mr. W. J. Wilson, of London, took the chair, and, after a few well chosen remarks, called for the reading of the minutes of the last meeting, which were read and confirmed.

New members were then proposed and accepted and some routine business was transacted. The meeting then adjourned for lunch.

On opening the meeting after lunch, the Chairman called as the first order of business the Secretary-Treasurer's and Registrar's reports. A very large mass of correspondence was reported, among the most important being numerous letters from all over the Province of Ontario relating to measures that were being adopted for endeavoring to procure better legal protection for our profession. Also correspondence relating to the prosecution and conviction of one T. Johnson for illegally advertising and practicing as a veterinary surgeon. He also reported fourteen graduates having registered since the last annual meeting.

The Auditor's report showed the finances to be in a good condition.

The report of the committee appointed in connection with the efforts made in endeavoring to procure better legal protection for our profession was discussed, and it was shown that, notwithstanding a clause was inserted, providing that all persons who had been practising veterinary surgery continuously in one place for fifteen years should be entitled to register, when it came before the Legal Committee for discussion it was found that a majority of that committee were opposed to the bill. The Chairman of that committee, the Hon. J. M. Gibson, suggested that in consequence of the rather serious opposition, the bill be withdrawn for this year, and, if thought advisable, introduced again at the next session of the Legislature, when he thought it would likely be carried.

After considerable discussion, it was resolved that the bill should be left in the hands of Mr. German, M. P. P., to endeavor

to carry it at the coming session of the Legislature, and that the old committee, consisting of Prof. A. Smith, Mr. C. Elliott, Mr. Hutton and the Secretary, should be empowered to act in endeavoring to get it passed.

The Secretary read a letter from Mr. Giffen, V. S., Secretary of the Michigan State Veterinary Medical Association, giving a most cordial invitation to the members of the Ontario Veterinary Association to join with the Ohio and Michigan Associations in holding a joint meeting in Detroit, Mich., U. S., on Sept. 5th next. All the members were requested to attend, and the Secretary was instructed to acknowledge the receipt of Mr. Giffen's cordial invitation.

The Secretary was instructed to send a letter of sympathy and condolence to the widow and family of the late Mr. J. H. Wilson, V. S., an old and valued member of this association, in the loss they have sustained by the death of our much esteemed and respected *confrère*.

The Chairman then called on any members present to describe any cases of special interest which they may have recently met with in their respective practices.

Mr. John Wende, V. S., of Buffalo, U. S., in response, described an outbreak of rabies, which was quite extensive about Buffalo, and the surrounding country, dogs, horses, cattle and hogs having been affected. He said that 75 per cent. of the dogs had the disease in what is called the dumb form. He gave an interesting account of his inoculation experiments. He also said that there was no law in his locality to compel the quarantine of dogs.

Mr. J. H. Tennant, V. S., of London, gave an interesting account of his results in adopting "Schmidt's treatment" for parturient apoplexy. The treatment was surprisingly successful.

Mr. W. J. Wilson, V. S., of London, spoke of the good results he had seen in the treatment of deep-seated fibrous tumors by injecting into the tumors with a hypodermic syringe a mixture of hydrochloric acid and pepsin.

Mr. John Wende exhibited an ingenious tube through which to insert the catheter in the cow.

All these subjects were extremely interesting, and many instructive remarks were elicited during the discussions on them that ensued.

It was resolved that the sum of \$25 be appropriated for a medal to be competed for by the graduating class at the next spring examinations.

The following officers were elected for the ensuing year :

President—Mr. W. J. Wilson.

First Vice-President—Mr. H. S. Werde.

Second Vice-President—Mr. J. H. Tennant.

Secretary and Treasurer—Mr. C. H. Sweetapple.

Directors—Messrs. D. H. McMurtry, J. H. George, W. Steele, J. Wagner, W. Lawson, F. G. Hutton, W. Shillinglaw, and F. J. Galanough.

Auditors—Messrs. C. Elliott and J. D. O'Neal.

Delegates to the Industrial Fair Association, Toronto—Prof. A. Smith and Mr. W. J. Wilson.

Delegates to the Western Fair Association, London—Messrs. J. D. O'Neal and J. H. Tennant.

C. H. SWEETAPPLE, *Secretary*.

MISSOURI VETERINARY MEDICAL ASSOCIATION.

The eighth annual meeting convened Dec. 30, 1899, in the lecture room of the Kansas City Veterinary College, Kansas City, Mo. The members and veterinarians present were Drs. W. B. Welch, Chas. Ellis, L. M. Kluttz, Horace Bradley, J. B. Black, S. Stewart, B. F. Kaupp, R. C. Moore, Louis Medsker, J. S. Buckley, Jas. T. Otterman, C. M. McFarland, Chas. Canfield, J. S. Grove, C. A. Monney, D. W. Elliott, H. T. Doak, and H. G. Patterson.

An interesting clinic, conducted by Dr. R. C. Moore, was held in the operating room of the college at 1 p. m., lasting five hours, was enjoyed by all present and it was the unanimous consent that clinics should be one of the features of our meetings in the future.

The evening session was opened at 8 o'clock, with President Dr. L. M. Kluttz in the chair. Drs. S. Stewart and W. B. Welch were elected members. The application of Dr. V. J. André, of St. Genevieve, was received too late, but will be acted upon at the next meeting.

The following officers were elected for the ensuing year :

President—Dr. H. Bradley, Windsor.

Vice-President—Dr. J. W. Connaway, Columbia.

Secretary-Treasurer—Dr. B. F. Kaupp, Kansas City, Mo.

Dr. S. Stewart, Chairman of the Committee on Legislation, made a report, which was received, and the committee discharged.

Dr. Chas. Ellis, of St. Louis, moved that the President appoint a committee to work for the legislation bill, the committee

to consist of one member from each congressional district. Seconded and carried.

A good and interesting program was rendered, and all joined in a lively discussion of the papers. Many interesting cases were reported. The report on the use of black-leg vaccine proved that it has been very efficient in the hands of veterinarians in the State. At 12 o'clock a motion was made to adjourn to meet in St. Louis, October, 1900.

HORACE BRADLEY, V. S., *Secretary*.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

We have received from Secretary Stewart, a letter giving news of the arrangements that are already under way for the next meeting of this association, and the most important paragraphs are herewith appended:

"President Leonard Pearson has appointed, as Committee on Local Arrangements, for the annual meeting to be held in Detroit next September, Drs. S. Brenton, J. Hawkins, and G. W. Dunphy. The personnel of this committee is an assurance that nothing will be left undone which would contribute to the convenience and pleasure of all in attendance at the meeting.

"The several standing committees are actively at work, and the resident secretaries are entering on a vigorous canvass of their respective territories. With all the officers actively at work in the interests of the association and the coming meeting, coupled with an unusual interest manifested by the membership in general, the indications are most favorable for a large attendance, and a grand good meeting at Detroit.

"Three papers have already been offered for the literary program, and the Secretary hopes that others will promptly decide to prepare papers for this meeting and will promptly notify him. Offers to demonstrate surgical operations are in order, and it is hoped that many will be willing to contribute to this most interesting phase of Association work.

"Your editorial remarks in the January REVIEW, concerning the lack of time for presentation and discussion of papers are timely, and I trust the members will use the pages of the REVIEW to suggest plans whereby each of the several phases of Association activity may have ample opportunity for presentation and consideration. All are important and should be given the fullest encouragement. Unusual conditions were confronted during the New York meeting and carefully laid plans could not be carried out. For instance, the number of papers offered

was largely increased at a very late date; an unprecedentedly large proportion of the papers announced in the program were offered for consideration. The several other meetings held in conjunction with ours prevented continuing the session another day, or the postponement of that most pleasant social feature, the excursion to Rockaway, until the following day. It would seem advisable to arrange hereafter for three full days sessions and leave the time consuming social features to come on the fourth day. Time could then be secured for meetings of the Association of Veterinary Faculties and State Examining Boards, and Association of Experiment Station Veterinarians, and also give time for clinics."

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

The seventeenth annual meeting was held at the Sherman House, Chicago, Nov. 15th and 16th, 1899.

The meeting was called to order Nov. 15th at 11.30 A. M. President W. J. Martin in the Chair. The following members responded to roll-call: Drs. W. J. Martin, Fry (of Naperville), Story, Gunning, Judson, A. C. Worms, R. G. Walker, Jas. Robertson, E. L. Quitman, J. T. Nattress, A. G. Alverson, Hugh Thompson, J. T. Ryan, J. L. Siegrosser, W. H. Welch, A. H. Baker, R. T. Hoadley, F. A. Pressler, N. I. Stringer, Albert Babb and Brown, of Galesburg. The minutes of the last regular meeting were approved as read, after which the meeting was adjourned.

Meeting called to order at 2.30 P. M.

President Martin, in his interesting annual address, gave a *résumé* of the status of the veterinary profession, and called attention to the ignorance of the medical profession regarding the close connection between diseases of animals and man, and suggested that every medical college should have on its staff a veterinary instructor.

Dr. Hugh Thomson then read a paper on several interesting cases of bowel trouble and one of apparent choke. Same was thoroughly discussed by Drs. Nattress, Robertson, E. L. Quitman, A. H. Baker and Alverson.

Remarks were next made by Dr. A. H. Baker on the "Prevailing Influenza," which was liberally discussed by Drs. Robertson, E. L. Quitman, Pressler, Alverson and Nattress.

Meeting was then adjourned until Thursday at 10 A. M. to meet at the Chicago Veterinary College for a clinic.

Nov. 16th, 1899.—Upon reconvening at the Chicago Veterinary College the following clinics were presented: A case of locomotor ataxia; one of fracture of the ilium just below the articulation with the sacrum (this condition was diagnosed by Dr. A. H. Baker, and the horse, which by the way was an old worn-out cripple, taken to the dissecting room, where he was destroyed, and upon post-mortem examination Dr. Baker's diagnosis was confirmed); one case of quittor; one serous cyst on hind quarter, due to a kick from another horse; one suspected case of glanders (mallein test without results); one case of tetanus in slings; one operation of low neurectomy, and I would state in regard to this case that healing took place by primary union in one week (operation performed by Dr. A. H. Baker). The clinics at the college were very instructive and were highly appreciated by all present.

Meeting called to order at 2.30 P. M. at Sherman House, President Martin in the Chair.

Dr. Albert Babb read an interesting report of a case of nasal polypus,* the same being of extraordinary size, weighing two pounds two and one-half ounces when removed. The operation was fully described and resulted in complete recovery. Discussed by Drs. F. A. Pressler, E. L. Quitman, A. G. Alverson and N. I. Stringer.

We next had a paper by Dr. Jas. Robertson on "Our New Veterinary Law." Discussed by Drs. Nattress, Quitman, Pressler, Alverson and Stringer.

A general discussion on tuberculosis was participated in by Drs. Martin, Robertson, Quitman, Alverson, Story, Stringer, Babb, Ryan and Nattress.

Dr. Ryan made a suggestion that this association take action in regard to State legislation concerning tuberculosis in this State, and said there should be something done in reference to National legislation on this subject.

The Treasurer's report was handed in and read, and on motion was adopted.

The following officers were elected for the ensuing term:

President—W. J. Martin, Kankakee.

Vice-President—T. J. Gunning, Neponset.

Secretary—A. C. Worms, Chicago.

Treasurer—R. G. Walker, Chicago.

Censors—A. H. Baker, Chicago; Albert Babb, Springfield, and R. W. Story, Princeton.

* Published in the January REVIEW.

After several minor discussions regarding a change of several sections of our Constitution and By-laws, it was moved by Dr. Robertson, seconded by Dr. Siegrosser, that a vote of thanks be extended to Dr. A. H. Baker for the clinics held at the C. V. C.

A vote of thanks was tendered Drs. Walker, Ryan and Robertson for the clinics which they furnished.

A vote of thanks was extended to J. Irving Pearce, proprietor of the Sherman House, for his kindness and hospitality to the veterinary profession.

Motion made and carried that a vote of thanks be extended to Messrs. E. R. Squibb & Son, Schering & Glatz and Merck & Co., for the splendid display of drugs and chemicals exhibited at the association meeting.

It was moved and seconded that our next meeting be held at Springfield, Ill. Carried.

Motion made to adjourn, which was carried.

ALBERT C. WORMS, *Secretary*.

VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

The attempt to merge the three veterinary organizations of New Jersey into one strong State association, has become an accomplished fact, as the meeting held in Newark on Jan. 11th was a pronounced success in every sense, the attendance being greater than ever occurred in that State before, and Dr. Lowe proposed fifty-two new names for membership, most of whom have already qualified by fulfilling the requirements.

DR. LOWE'S ADDRESS.

Dr. Wm. Herbert Lowe, of Paterson, delivered the following address:

Mr. President and Fellow-Practitioners:

Now, in the dawn of the twentieth century, we witness the beginning of a new epoch in the history of the progress of veterinary science in the State of New Jersey. It is not necessary to dwell upon the early struggles of individuals and of societies for existence and life during the era now at a close, but let us pause for a moment.

Heretofore the profession of our State has been divided up into various factions and societies, each trying to accomplish what they could. To-day these societies are merged and amal-

gamated into one strong State organization — the "Veterinary Medical Association of New Jersey," truly representative of the profession of the State.

This means one strong State organization instead of two or three societies more dead than alive; this means unity, harmony and strength. Now we may expect to see a steady, healthy growth in veterinary science and art with a consequent benefit to man and beast.

To greet the veterinary societies of the State as an amalgamated association, and to welcome the officers and members of each, is a privilege I esteem very highly.

This, I believe, is not only the largest, but the most earnest and truly representative gathering of members of the veterinary profession that has ever assembled within the confines of the State, which in itself speaks louder than language that the profession is stirred as never before in her history.

It has been said that I was, like the commercial men of the day, organizing a "veterinary trust." I think veterinarians have enough trusting to do without any organizing. However, I am willing for it to be called a "veterinary trust" so long as we can have unity, harmony and strength. Three months ago some of the oldest and wisest men in the profession shook their heads and said that it was impossible to unite and organize the veterinary factions in this State. What seemed impossible so short a time ago, is now an accomplished fact.

It was thought wise to build upon the old foundation laid many years ago. I refer to the Veterinary Medical Association of New Jersey, organized in the year 1884, and incorporated in 1885 under an act of the Legislature for the promotion of veterinary science and art. This act was repealed in 1899, so no more veterinary societies can be incorporated under it, and inasmuch as the other two incorporated societies have to-day merged with the original association, that leaves the Veterinary Medical Association of New Jersey the only chartered veterinary society in the State and does away with the provision for any more societies being incorporated, which is a good thing.

Some of the members of the old association did not have the advantage of collegiate and scientific training of the veterinarian of to-day, but many of these men deserve a great deal of credit for what they did accomplish with the limited means at their command. I want to say to the profession here assembled that I have a great deal of respect for many of these men. I have known some of them, such as the lamented Dr.

Dustan of Morristown, who had qualities of mind and heart that more than compensated for lack of collegiate training.

The large number of candidates for membership at this meeting is phenomenal.

I have had the honor of presenting the names of fifty-two practitioners, most of whom have already paid their initiation fees. Fifty-two new members certainly ought to throw new life into the various branches of the association's work. I predict that the Veterinary Medical Association of New Jersey can be made one of the, if not the, strongest and best veterinary societies in this whole United States. There is plenty of good timber in New Jersey. It will not do to let Dr. Hoskins have it all his own way over in Pennsylvania.

I would like to see this association inclusive rather than exclusive. Of course all will not have equal education or equal ability. This is not found even among the graduates of any particular college or university, but all the more reason for and importance of society attachment.

The advantages of a proper State organization are many. First, it gives practitioners an opportunity of getting acquainted with each other and tends to create a fraternal feeling. Of course, if a man has not character, he will do mean and contemptible things whether he is in the society or out. In the society, however, he can be disciplined and brought under moral restraint, whereas, if outside, nothing can be done with him unless he directly violates a law of his city or of the State.

In the second place the State association is of great importance in the promotion of scientific advancement, which every truly professional man is interested in. There is not a veterinarian in this gathering but who knows certain things that would be of advantage to some other veterinarian; and then again this some other veterinarian knows things that his brother does not know. There should be an exchange of experiences, opinions, etc. Cases should be reported, not those only that recover, but more particularly those that do not recover. The practitioner's opinion as to why cases did not recover should be given. Post-mortem examinations should be the rule, and not the exception, if the profession is to advance in pathology and in the scientific treatment of disease.

The examination of horses as to soundness is a subject that this association could profitably take up, and one that every practitioner would take an interest in and one that every veter-

inarian would profit by. There seems to be such a difference of opinion among practitioners as to what constitutes soundness and what constitutes unsoundness.

We have here with us a veterinarian who has given a great deal of special study and thought to normal and pathological horse shoeing, who could instruct and interest us. I refer to our friend, Dr. McDonough. There are others who perhaps could add to Dr. McDonough's experience, and so on.

Other members would be better qualified to discuss dental and general surgical manipulations and operations. In this connection I would like to say I can see no good reason why we cannot have surgical clinics at our meetings; they are already becoming quite a feature at the meetings of the National Association.

Sanitary medicine, State medicine, veterinary inspection of the meat and milk food supply, and a proper veterinary inspection of the animals that produce the supply, are questions that concern the health, as well as the wealth, of the people of the State, and it is a body of this kind that is essentially qualified to study and deal with the many complex problems that are connected with this important subject. I could go on indefinitely indicating scientific work that we as an organization must take account of, but I must pass on to another advantage that a strong State organization is to the profession and to the public alike. I refer to veterinary legislation.

We can only expect to get such legislation as the profession should have by being united and by earnest and persistent effort of the association as a body as of its members individually. Our veterinary law passed in 1889 will have to be amended. This can be done if we stand together. We should have a State Board of Veterinary Medical Examiners in this State similar to the Boards in Pennsylvania and New York. It is a notorious fact that men who cannot pass before these Boards come over to New Jersey and set themselves up as veterinarians. Is the profession going to stand quietly by and allow New Jersey to become the "dumping ground" of professional incompetents? I think not.

There is an illimitable amount of professional work for the veterinarian who has the true interests of the profession at heart. The field is ever broadening; the extent to which the health and wealth of the people depend upon the application of veterinary science is becoming more appreciated day by

day. I see a great future for the Veterinary Medical Association of New Jersey as now constituted. May she ever be true to herself and to the interests of the people of our beloved State.

Dr. Leonard Pearson, State Veterinarian of Pennsylvania, was introduced and outlined in a concise and comprehensive manner the various branches of professional work that came within the range of the State Association.

Dr. W. Horace Hoskins, of Philadelphia, followed with a congratulatory speech, and Dr. W. L. Rhoads, of Lansdowne, Pa., made some pleasing remarks.

Dr. T. Earle Budd, of Orange, read a very interesting paper on "Maternal Dystokia."

Resolutions were passed endorsing the Army Veterinary Bill, now before Congress.

Resolutions were passed on the death of Dr. William H. Arrowsmith, of Jersey City, a graduate of the American Veterinary College, and former President of the Veterinary Medical Association of New Jersey.

A resolution was passed authorizing the publication of the "Veterinary Medical Register of the State of New Jersey," and giving Dr. Lowe, the compiler, authority to have it published as soon as the necessary data are compiled.

And thus the veterinary surgeons of New Jersey, after many years of half-hearted associational work, have laid the foundation of what we hope and believe will be one of the strongest veterinary organizations in this country.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

This association held its regular monthly meeting in the lecture room of the New York-American Veterinary College, on Jan. 3, 1900, Dr. Jas. L. Robertson presiding. After roll-call the minutes of the previous meeting not being presented, their reading was deferred until the next meeting, and the reading of papers was immediately begun.

Dr. Grenside read a very interesting and practical paper entitled "Action."* The discussion which followed was actively participated in by Drs. Hanson, Bell, Gill, Delaney, Ackerman, and others, and led into one equally animated on that exhaustless subject, "Examination for Soundness."

Moved by Dr. O'Shea that a vote of thanks be extended the essayist. Seconded and carried.

* Published elsewhere in this issue.

New Business.—Under this head it was regularly moved and seconded that the President should direct the Secretary to notify all members eighteen months in arrears, that they are suspended from membership until such dues be paid. Carried. The Secretary was so directed by the President.

Committee on Ways and Means.—Dr. Bell, chairman, reported that Dr. Ryder would read a paper at the February meeting on "Docking," and that Dr. Lellman would also read a paper at that meeting, subject not yet announced.

Moved and seconded: that the meeting adjourn.

ROBERT W. ELLIS, D.V.S., *Secretary*.

MAINE VETERINARY MEDICAL ASSOCIATION.

The regular meeting was held at Waterville, October 13, 1899.

At 10 o'clock a clinic was begun, which lasted all day, with the following operations: Fistula of the inferior maxilla, Dr. West; cauterization of spavin, Drs. Freeman, Puscell, and Blakely; removal of tumors, Dr. Joly; fistula of the withers, Dr. West; castration of ridgling, Dr. Salley.

All the operations except cauterization of spavin were performed under the influence of chloroform.

All were well pleased with the day's operations and felt well repaid for the time and trouble to attend the meeting.

At 7.30 P. M. a meeting was held at the Elmwood, President West in the chair.

Drs. Freeman, Joly, Puscell, Blakely, West, and Salley responded to the roll-call.

Minutes of previous meeting were read and accepted.

Voted to adjourn to meet at Augusta in January.

I. L. SALLEY, *Secretary*.

NEWS AND ITEMS.

DR. JNO. P. O'LEARY, U. S. Inspector of the Brighton Abattoirs, near Boston, has been transferred to Buffalo, N. Y.

DR. J. H. MCNEALL, of the B. A. I., stationed at Buffalo, N. Y., has recently been transferred to similar duties at Boston, Mass.

DR. H. R. RYDER, of the B. A. I. force at Indianapolis, Ind., has recently been ordered to report to Dr. C. H. Zink, of Buffalo, N. Y., for similar duty at the last named place.

THE KANSAS CITY VETERINARY COLLEGE has recently

added to its buildings a post-mortem room, with cement floor with drainage, and has enlarged its clinic and operating room.

DR. JOHN J. MOYNAHAN, of Holyoke, Mass., has been appointed veterinarian to the Fire Department of that city at a salary of \$500 per year.

THE MISSOURI VETERINARY MEDICAL ASSOCIATION will make another attempt during the coming session of the State legislature to have a law passed regulating veterinary practice in that State.

DR. WILLIAM G. SHAW, assistant inspector B. A. I., on duty at Cincinnati, has been ordered to report to Colonel Albert Dean at Kansas City, for assignment to duty in the quarantine division.

DR. ARTHUR O'SHEA, of New York, has been appointed, after competitive Civil Service examination, veterinarian to the Department of Street Cleaning, and assigned to duty in the Borough of Brooklyn.

DR. FROTHINGHAM read a paper before the January meeting of the Massachusetts Veterinary Association entitled "Impressions of European Slaughter-houses and Veterinary Schools."

THE discovery is announced in the lay press of chloroform anæsthesia robbed of its dangers and bad after-effects. We have not seen the subject treated of from a scientific and authoritative standpoint.

CHRISTMAS EXAMINATIONS AT ONTARIO VETERINARY COLLEGE.—The usual Christmas examinations were held in the College building, Toronto, on Dec. 21, 1899. The board of examiners, which is composed of prominent veterinary surgeons in the active practice of their profession in various parts of the country, after subjecting the candidates to a stringent examination, awarded diplomas to the following gentlemen: Alva G. King, Moosup, Conn., U. S.; Arthur N. Norwood, Naugatuck, Conn., U. S.; Millage Philps, Wallaceburg, Ont.; Wm. S. Schulze, Marengo, Iowa, U. S.; and David J. Smith, Barre, Vermont, U. S.

THE BOVINE OUTDONE.—At St. John's Hospital, Brooklyn, N. Y., on Saturday, Jan. 13, 1900, John Sasel, a dime museum freak, who had been filling an engagement at one of the many New York resorts, and swallowing all sorts of things for the edification of the peculiar audiences who frequent such places, was operated upon by Dr. George G. Hopkins, the attending surgeon, in the presence of many prominent surgeons of the

former city. The patient had been suffering from stomach trouble for some little time, and in the efforts to relieve him a powerful emetic brought up a brass chain three feet long. But this not alleviating the symptoms an operation was decided upon, and the following list of articles were removed from his stomach: Three chains, one brass and two nickel, two latch keys, six hair pins, 128 common pins, ten 2 1/2-inch iron nails, two horseshoe nails, and one ring with a stone in the setting. The operation was the immediate result of an examination with the X rays. Many other objects had passed into the intestines. He bids fair to recover.

AN AUTOMOBILE, conveying a lady to a dinner party, became unmanageable and ran away. The conductor informed his passenger of the state of affairs, and that nothing could be done until the machine ran down. This, he said, would take four hours. So, directing the "mobe" to a circular clearing in the park, it continued to go around and around until the power was exhausted, when it came to a standstill, the lady walking home, with a determination to hereafter use other modes of transit. In New York last month another machine got from under the control of the motorman, and crashed into an elevated railroad pillar. During the same week suit was begun against the electric cab company by a young lady, who, seated on the stoop of a house, was nearly killed by a cab of the company jumping the curb and pinioning the fair victim against the stone steps. She lies a victim of meningitis and will probably die. If this record continues, the *Herald* will be forced to divide its staff of "runaway reporters," using some of them to strangle news calculated to discredit the perfect safety of horseless carriages.

LEGAL RIGHTS OF A HORSE.—For the first time in the history of the State of Colorado the right of a horse as being entitled to sufficient food and proper shelter at his master's expense is to be tested before the courts, with the Humane Society upholding the horse's side of the case. The facts of the case are as follows:—During the extremely cold weather and period of deep snows last January, Agent Bailey received reports that there was a band of horses, thirteen or fourteen in number, twelve miles up in the mountains from Wauneta, and that the animals were snowed in and starving to death. They had been turned out by their owner to shift for themselves during the winter. With a companion he made a trip on snow shoes to the place, and after considerable difficulty found the animals.

They were in the heavy timber. The snow, five or six feet deep on the level, they had packed down by tramping about, so that they were shut in by the white walls of snow several feet high, forming a "yard" such as the elk make in the aspen thickets during the winter. The poor beasts were terribly emaciated and in the last extremities of starvation. Agent Bailey and his companion returned to Wauneta and went back on snow shoes as soon as possible with hay for the all but famished animals. One or two died from the cold and privation in spite of the efforts of the two men. It was three weeks before a path could be beaten to the town and the horses able to travel. They were then taken to Wauneta and their owners, known from the brands on the horses, notified. Agent Bailey demanded from each owner the pay for the food taken to the horses, and the necessary expense of removing them from the mountains. This was refused by the owners, and the horses were held by the agent. A suit to replevin was then instituted by the owners for the recovery of the horses. This is the case as it stands, and the decision of the court will determine whether or not a horse that has been left by his owner to starve during the winter may contract a board bill, for which the owner is liable, and in a large degree fix the relations of owner and owned.—(*Denver Post.*)

ALEX. EGER, 34 East Van Buren St., Chicago, Ill.,

Veterinary Publisher, and dealer in Veterinary Books, Drugs and Instruments, is the authorized agent of the REVIEW in Chicago and the Middle West, and will receive subscriptions and advertisements at publisher's prices.

SECRETARIES OF V. M. ASSOCIATIONS

Can make money for themselves and do much good to their profession by getting up Subscription Clubs for the REVIEW. Write us for club rates and full information.

REVIEWS FOR EXCHANGE.

I have these duplicates: Vol. XVIII, July (1894); Vol. XV, April and May (1891). I need the following: Vol. XIX, September and October (1895); Vol. XVII, January (1894). Would like to exchange with some one having duplicates, etc. HUGH THOMSON, V. S., Sharbona, Ill.

NOVEMBER, 1894, REVIEW WANTED.

To complete my file I would like to secure No. 8, Vol. XVIII of the AMERICAN VETERINARY REVIEW. Any one having an extra copy of that number please address H. D. STEBBINS, V.S., West Winfield, N. Y.

BACK NUMBERS REVIEW FOR SALE.

Volumes 2, 4, 8, 9, (complete); April, '79, '81, '82, '83; May, '79, '81; June, '79, '81; July, '79, '81; August, '79, '81, '83; September, '79, '81, '83; October, '79, '81; November, '79, '81, '83; December, '81, '82, '83; January, '80, '82, '83, '84; February, '80, '83, '84; March, '83, '84.

Apply C. E. C., 141 West 54th street, New York City.

AMERICAN VETERINARY REVIEW.

MARCH, 1900.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

A BUSINESS TALK WITH REVIEW SUBSCRIBERS.

Beginning with the first number of Volume XXIV (April, 1900,) the REVIEW will inaugurate a radical change in its system of conducting its subscription department. *Every* subscriber whose paid-up subscription terminates with the close of the present volume, and who does not renew the same by remitting the amount prior to the date of mailing that number will fail to receive it. We are compelled to adopt this means on account of the imposition practiced upon the publishers by a large number who are now upon the subscription lists, and who absolutely ignore all bills, notices and entreaties to pay their obligations. There are a very large number of names on those lists to whom the REVIEW has been regularly sent for two and three years, and even longer periods, and from whom no word has ever been received except an occasional complaint of tardiness in the receipt of the journal. We cannot permit those who regularly pay their subscription fees to do so for the benefit of others who are either careless or unwilling to discharge their just indebtedness. We regret very much that this inviolate and drastic rule will strike many who do not deserve such treatment at our hands, but they are usually men who understand that the enforcement of any radical reform must affect the just while reaching out for the unjust.

The REVIEW has for many years had a patronage sufficient to guarantee its readers a much better journal than they have

been receiving, if all paid their bills; but the yearly accumulation of unpaid balances of subscribers simply cramps the financial management to such a degree that the publishers are unwilling to bear with it any longer.

To those who in consequence of this change in methods are seemingly harshly dealt with, and who we know do not deserve such treatment, we can only say that this step has been taken as much for their benefit as for our own, and we firmly believe that American veterinary journalism will be greatly benefitted by it.

During the month of March bills will be forwarded to every subscriber for all back dues and for Volume XXIV (beginning with April, 1900); all who remit will receive the REVIEW promptly each month for that volume; those who ignore the notification will be stricken from the lists. We cannot afford to lose one, and we sincerely trust that the blue pencil will not mar the name of a single subscriber. But if it does, it is an act of their own.

This notice will be published in a prominent position in the February and March issues of the REVIEW, so that there will be not one who can assert that he did not have due warning of the unwilling change in methods that has been forced upon the publishers.

EUROPEAN CHRONICLES.

APPLICATION OF ELECTRICITY TO HORSES.—Electricity is not used in veterinary surgery, or at least in very rare instances, and it is quite certain that among the reasons which prevented its entrance in the domain of ordinary practice are the difficulties of its application, as well as the dangers to which it exposes both the operator and the operated, the former, if the operation is done with the animal standing; to the second, in consequence of the means of control which must be used—casting. And these are apparently such that men like Storkfelth, Jobelot and Möller have in their writings stated that the application of electricity was impossible unless the animal

was secured in the decubital position and chloroformed.

At the clinics of the Veterinary School of Milan, Dr. A. Baldoni has for some time, as far back as 1897, carried experiments which seem to prove that there is some exaggeration in the statements of the brilliant authorities referred to above. He has simply resorted to specially arranged stocks, three models of which are placed in various wards of the hospital of the school, in which the animal is perfectly and safely secured for himself and for the operator. Dr. Baldoni resorts to continuous current, which he applies gradually, so as to have the animal become used to it by degrees and all without violent struggles or any danger of injuries.

The results which have been so far obtained and are recorded in several issues of the *Clinica Veterinaria* are certainly very telling, and if the number of cases treated are not yet sufficient to be decisive in their value, this cannot be entirely decried, specially when taking into consideration that nearly 50 per cent. of the cases treated have recovered, and the balance shown various degrees of improvement. Applied to affections of nervous origin, there is no reason why with the method used at the clinics of Milan, veterinarians cannot gain as much advantage as human surgery does.

The cases recorded by Dr. Baldoni are the following: 3 of paralysis of the supra-scapular nerve, 1 recovery and 2 improvements; 3 of paralysis of the same nerve on the left side, 2 recoveries and 1 improvement; 1 roarer, improved; 1 paralysis of right radial nerve, improved (this patient died of pneumonia during the treatment); 1 case of paralysis of the anterior femoral nerve, recovery; 1 of contusion of the postea spinatus with atrophy, recovery; 1 of chronic lumbar rheumatism, recovery; 1 sprain of dorso—lumbar region with paralytic manifestations, improved. The last case is complicated: bruise of the anterior face of the right arm, with partial laceration of the coraco-radial and corresponding pectoral muscles and necrotic splinters of the anterior-external face of the humerus. Notwithstanding complications of the other fore leg, the case was

improving under treatment by electricity at the time it was recorded, with all prospects of recovery.

* * *

INTRAVENOUS INJECTIONS.—Should this mode of therapy be accepted in general practice? Such is the question that was presented lately by Mr. P. Chaussée, at least for the application of therapeutic serums, antitetanic, antistreptococcic or artificial. By a series of experiments which he has made, Mr. C. seems to answer his question in the affirmative, and considers this mode presents advantages over the hypodermic method. For him, the dangers of the operation have been exaggerated; he has never met with any of the complications of thrombus, abscesses or phlebitis, although he acknowledges having operated in several instances without any antiseptic preparations. In using antitetanic and anti-streptococcic serum he has injected 10, 20 and 30 cubic centimetres without any complications, and of the artificial serum he has introduced 800 and 1000 grammes in the general circulation of mares and cows after difficult parturition and has obtained most magnificent results.

Prof. Moussu, of Alfort, to whom the paper had been referred, gives, however, a cold answer of "no" to the principal question, viz., *Have intravenous injections real advantages in all cases?* With the antitetanic injections, there remains but one indication for its use, the preventive injection. Except the clinical cases, experimentation has shown that intracerebral injections remain inefficacious. Must it be the same for intravenous injections? As to saline injections (artificial serum) they cannot answer for all cases. They have many advantages, but there are many abuses, and are indicated in the form of intravenous injections only after severe hæmorrhages, when there is danger of death; they are indicated in infections with cardiac collapse, where they raise the blood tension, stimulate the heart, arrest or retard the destruction of the globules, etc. And even in these cases it must be done under some special condition and special care.

The use of artificial serums, of which we spoke some months ago in the REVIEW, had better remain confined for some time to hypodermic administration, as, notwithstanding the results claimed by Mr. Chaussée, it is quite certain that the authority of the Professor of Alfort will prevent the free adoption of intravenous injections until more experiments are made.

A. L.

VETERINARY JOURNALISM.

Our esteemed English contemporary, the *Veterinary Journal*, came forth with its January number in the rôle of a journalistic giant, departing from its time-honored conservatism of stepping in the same tracks from one year's beginning to its close, and announced that a copy of that issue would be forwarded to every known English-speaking veterinarian in the world, in the hope of extending its circulation and thus adding to its ability to publish a greater monthly. To one who has read the *Journal* for many years, the departure noted would almost take one's breath away, so methodical, so staid, and so conservative has been its former conduct. But it showed so much snap and up-to-date enterprise in that number that we congratulate the publishers and the editors, and trust that the expense incurred may be returned many times over. Such efforts in America are usually non-productive of results, however earnestly they may have been pursued. The inauguration of a cash basis by the REVIEW, beginning with next month's issue, is another departure from a long established custom; but in this case necessity is the father of the venture. Out in California an enthusiastic veterinarian began the publication of a journal in September, which made its appearance for two consecutive issues, and subsided into "innocuous desuetude." The query might be made: "Since it was so soon undone, why was it ever begun?" All of which goes to show that he who imagines that the publication of such a magazine is a work of pleasant luxury and remunerative idleness will find out his grievous error before his first volume has been completed. Ask Editor Hoskins, of the

Philadelphia *Journal*, what he thinks about it. Then sit down and write your check (enclosing ten cents extra for bank collection charges if outside of New York City) for a renewal of your subscription to Volume XXIV—if your paid-up subscription terminates with this number; you'll get a bill this month if it does. If practice is good, buy Brother Hoskins' paper, too. If you are really making money, take the English *Journal* along with them; but, whatever you do, don't neglect the check for the REVIEW—and the extra ten cents; or else a postal money order, and save the dimè.

LET THE COBBLER STICK TO HIS LAST.

The New York *Journal*, said to be the "yellowest" paper in the country, periodically indulges in "scientific" editorials for the delectation of its very mixed circle of readers. Behold the following extract from one of its "wisest" efforts, under the "catchy" caption, "Legs Under the Whale's Skin, and 'Pink Eye' in Horses," which it apologizes for in these words: "Of course, this heading has been purposely written to seem odd. But editorials are so dull and you are all so busy that you'll excuse any effort to fix your attention." With the *Herald's* automobile lies and the *Journal's* "popular science," the horse is having a hard time of it in Gotham. Observe how it fixes the reader's attention:

* * * * * * *

"You who have horses know that the disease called 'pink eye' is now epidemic. That disease is unquestionably due to one of the 'vestigia,' and we advise educated veterinary surgeons to look into it. The trouble with the 'pink-eye' horse lies in his remnant of a 'nictitating membrane.'

"Certain birds, mammals and fishes—notably crocodiles, sharks—possess a sort of third eyelid. The shark's nictitating membrane extends from the inner corner of his eye, and he can spread it over the whole eye with ease.

"If you look at your own eye you will see near the root of the nose a little moon-shaped fold, which is called the 'plica semilunaris.' That is the rudiment in man of the membrane which is still so useful to the shark, the nictitating or 'winking' membrane. You know by experience how easily it is irritated by a speck of dust. This rudiment in the horse causes him great trouble. It gives him 'pink eye' when it gets inflamed, and it might be worth while for Dr. Huidekoper to try surgi-

cal removal of that rudimentary membrane from horses, as Dr. Bull removes the appendix from human kind."

* * * * *

HOW THEY HANDLE TUBERCULOSIS IN MINNESOTA.

It usually takes persistent and patient work to get any important movement started, but if we only stick to it, we can frequently accomplish great things where the first outlook was very discouraging. It was quite difficult to get work with tuberculin started among Minnesota breeders. The work with city dairies was easier to manage, and we are all proud of the advanced position that has been taken both by Minneapolis and St. Paul; *i. e.*, license to sell milk based on tuberculin test. Several of the smaller Minnesota cities of 3000 to 10,000 have adopted similar ordinances, others have such on the programme for early adoption, even as far northwest as Warren, away up in the Red River Valley. At a recent meeting of the Minnesota State Agricultural Society, a committee of five was appointed to confer with the representatives of the State Board of Health and Experiment Station with a view to studying the problem as presented in that State. The five selected were all influential breeders of pure bred cattle. Quite a number of pure bred herds have been tested and others are promised for the near future. Things do move, but sometimes it takes a long while to get them started.

IOWA'S AGRICULTURAL COLLEGE.

We are in receipt of the eighteenth biennial report of the President of this well known State college, and are interested in his recommendations concerning the veterinary department, which, under the wise guidance of Prof. Stalker, has made a national reputation for his school such as any one might take pride in. He takes a very hopeful view of the future of the profession, and after dwelling upon the progress already made, says that "in the next five years we must make provisions and

suitable quarters for general hospital purposes, for a hospital for infectious diseases, for laboratories, and histology, physiology, pharmacy and bacteriology, for dissecting room and crematory, and for shoeing shop. In addition to all this, it will be necessary to have the corresponding equipment of men and apparatus. An estimate of \$75,000 is in moderation." With the eloquence of Dr. Stalker before the proper Legislative Committee, we have no doubt but that the securing of such an appropriation will be an easy task.

IOWA SEEKS A VETERINARY LAW.

We print elsewhere a copy of a bill just introduced in the lower house of the Iowa legislature by Representative Koto, a veterinarian—who is, by the way, an enthusiastic member of the State Association and chairman of its Committee on Legislation. It will be seen by reference to it that our Iowa brethren are rather modest in their demands for protection, but it is explained that a radical bill would have no opportunity of passage whatever; and in such a case the bill as it stands is a splendid "half loaf." It disarms all opposition, since it takes under its wing all who have practised for five years, and does not disturb the army of castrators and dehornerers. But it accomplishes the subsidence of non-graduates on the closure of the registration books on January 1, 1901. The bill was drafted by the Legislative Committee of the Iowa Association—Drs. Koto, Repp and Gibson, broad-minded and zealous of their profession's interest, yet conservative and diplomatic enough to know just how far to go. Since the bill meets their approval we are assured that it is the best that can be secured at present, and we trust the profession will support it unstintingly.

MANY SUBSCRIPTIONS terminate with this issue. By an iron rule going into effect now, no one will receive another number after the close of the term paid for. See full explanation at head of this department. Look through this issue carefully, and say if you can afford to lose your best friend. The

REVIEW cannot afford to lose you. Don't ignore this notification, and then ask why you have not received your April number. Send a postal order or check *now* while it's fresh in your mind. Volume XXIV will be the best the REVIEW ever gave its readers. We know it, because our plans are well matured.

THE MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION met in St. Paul, January 11 and 12, with an attendance of about thirty members. The association gained eight new members at this meeting. The programme was thoroughly enjoyed. This was a record breaker for Minnesota, but they say the next annual meeting will surpass this record.

THE activity of the committees of veterinary medical associations and State Secretaries in behalf of the Bill to establish a veterinary Army Corps is most gratifying, and with such influences working all over the country there can be no such word as "fail."

ORIGINAL ARTICLES.

OBSERVATIONS CONCERNING THE SIGNIFICANCE OF STREPTOCOCCI IN COMPARATIVE PATHOLOGY.

BY VERANUS A. MOORE, B. S., M. D.

*Professor of Comparative Pathology and Bacteriology, New York State Veterinary
College, Cornell University, Ithaca, N. Y.*

(Continued from page 787.)

STREPTOCOCCI IN DISEASES OF DOGS.

Distemper, rabies, and chronic pneumonia are the only diseases of dogs which I have examined bacteriologically. In the examination of cases of rabies I have never met with streptococci in the organs, and the same is true of the few cases of broncho pneumonia which have come to my attention. In distemper, the results have been quite different but not constant.

The literature upon the cause of this disease is, so far as bacteria are concerned, quite conflicting. Dr. Jess* has recently isolated a bacillus from the nasal discharges, blood, and internal organs of dogs suffering from distemper which he looks upon as the probable etiological factor. Although Dr. Jess' investigations are of recent date and while it is not improbable that he has found the cause I can not refrain from giving in this connection the results of a few examinations which at least show the power of streptococci to complicate investigations in this species.

In all I have examined three cases.

The first two came to Dr. Law's clinic in the winter of 1898-99. They were both in the advanced stage of the disease when received and died soon after their arrival.

A congestion of the lungs was the only marked abnormal condition detected. A large number of tubes of media (bouillon, gelatin and agar) were inoculated from the tissues from each case. The tubes of bouillon and agar inoculated from the liver, spleen, kidneys, heart blood, and brain from one case developed into cultures of a streptococcus. The gelatin remained clear. The cultures were nearly all pure. The streptococcus grew in long chains forming dense interlacing masses or floculi. It was exceedingly delicate in its cultural manifestations but it was not pathogenic, in moderate doses, for rabbits or guinea-pigs. Larger quantities of culture were not injected.

The cultures from the other case contained a streptococcus. It differed from the first in growing in short chains and imparting a uniform cloudiness to bouillon. In all of its cultural manifestations it was more saprophytic in its tendencies than the culture from the first case. It was innocuous for experimental animals.

A third case, which exhibited marked nervous symptoms, was recently examined. A small dog in the advanced stage of the disease was brought to Dr. Fish for treatment. It was comatose for fully 48 hours preceding death. Through the

* *Centralblatt für Bakteriologie u. Parasitenkunde* Bd. XXV (1899) S 541.

kindness of Dr. Fish I had the privilege of making the post-mortem. There was considerable purulent discharge from the conjunctivæ. The left lung was collapsed and part of it in a state of consolidation. The mucosæ of the intestines were deeply reddened in circumscribed areas throughout. The brain was slightly hyperæmic. In other respects the organs appeared to be normal. A large number of cultures were made from the various organs. Those from the spleen, kidneys and blood remained clear. The others contained different bacteria. One of the cultures from the brain, one from the left lung, and those from the conjunctiva contained a streptococcus associated with other bacteria. It grew in long chains but it was not separated in pure cultures.

The results of these examinations are interesting in showing that in dogs certain streptococci find conditions favorable for life. Although it was thought that the streptococcus isolated from the first case was related to the disease, the results of the examinations of the two subsequent ones threw much doubt upon this hypothesis. No other suspicious organism was discovered.

THE WIDE DISTRIBUTION OF STREPTOCOCCI A FREQUENT SOURCE OF CONFUSION.

The fact has been pointed out in many publications that streptococci are quite widely distributed in nature. The results of the bacteriologic examinations of normal mucous membranes show that they are frequently included in the bacterial flora of the mouth, throat, nares, intestines, vagina, and in a few cases they have been found in the bronchioles of the horse* and rabbit†. They are also present in greater or less numbers on the skin, especially in the deeper layers, presumably in the ducts of the sweat and sebaceous glands. In a former publication‡ I called attention to their existence in soil and water, and stated that some of these extraneous forms were quite as deli-

* Examinations made in his laboratory by Mr. R. C. Reed. 1897.

† Beco. Archives de Méd. Expérimentale. Tome XI (1899.) p. 317.

‡ *Loc. cit.*

cate in their morphology and equally as sensitive to the influence of environment as those isolated from diseased animal tissues. In view of this wide distribution, the presence of a streptococcus in any of the abnormal conditions heretofore mentioned cannot be considered necessarily a specific infection from a previous case of the same kind. In many affections where the specific organism has been demonstrated, such for example as diphtheria, tuberculosis, and hog cholera, streptococci frequently appear in the lesions. In these cases they are considered as accidental or secondary invaders, although in some of these maladies, such as tuberculosis, they are believed to be of more or less secondary importance. When, however, the specific cause of the disease is not positively known, and streptococci which possess certain pathogenic powers for experimental animals are constantly present and seem to stand in a causal relation to the disease, the pathologist is confronted with a puzzling problem in trying to determine the source and the etiologic importance of the organism in hand. In cases of infection leading at once to septicæmia, peritonitis or suppuration the explanation is more simple than in the epizootic diseases such as *Brustseuche* in horses or distemper in dogs where the constant presence of streptococci in the lesions can be quite as easily explained on the ground of their normal presence in the parts affected as on the hypothesis of a specific infection. It is in these cases that we are seeking for the crucial test.

We have found in a few test experiments that when certain of the delicate streptococci which exist (are found) in external nature (soil or water) are introduced within the tissues of certain animals they become, by reason of their activities, a source of irritation which causes local tissue disturbances. In a few instances they have produced septicæmia with fatal results.

In cases of infection resulting in septicæmia, or in those where the disease is more localized as in strangles or mastitis, and possibly in others where the affection spreads more or less rapidly, we can not well escape from the feeling that the streptococci present in such large numbers, must either stand in a

causal relation to the disease or be accounted for by their rapid proliferation in native soil made favorable for their excessive increase by the conditions produced by the true etiological factors. Their natural distribution is so wide, and their virulence so capricious that a secondary invasion, which seems always to be possible, renders the fixing of etiological responsibility upon a streptococcus isolated from any diseased tissue a somewhat difficult task. The problems in this connection which concern us most and which need more extended investigation pertain (1) to the determination of the parasitic possibilities of streptococci existing in nature, *i. e.*, those ordinarily considered as saprophytes and, (2) to the distinction, if it exists, between streptococci which are able to produce local inflammatory processes leading to suppuration and those which produce highly infective and rapidly spreading diseases, such as erysipelas and possibly strangles and *Brustseuche*.

ANTISTREPTOCOCCIC SERUM.

The questions which are asked most frequently concerning the practical side of this subject pertain to the antitoxin or antistreptococcic serum. Certain temptations have been placed before the veterinary practitioner by way of attractive and assuring advertisements of such products. The beneficent results from diphtheria antitoxin seem to attract people toward serum therapy with more hope than knowledge concerning the properties or probable therapeutic action of the serum to be used. It is not pleasant to put even the proverbial straw in the way of the enthusiasm over serum therapy, but in a sober consideration of the practicability of the widespread use of antistreptococcic serums in the diseases heretofore mentioned in which streptococci are associated and where they stand in a possible causal relation to the disease, certain important facts must be taken into account.

If I have succeeded in conveying the facts as I see them concerning the relation of streptococci to animal diseases, it is clear that there is a large number of these organisms which are likely to invade the animal body either as primary factors

in the production of disease or secondary invaders possessing more or less septic power. This being the case, the advocates of the general use of any of these serums imply that the antitoxin of one streptococcus will immunize against or cure animals infected either with the same or with any other species or variety of this genus of bacteria.

In 1897 Van de Velde* in a very exhaustive series of experiments showed that one streptococcus antitoxin will not immunize against another save to a very slight degree.

The statements of Sir Richard Douglass Powell† in his recent address before the British Medical Association are worthy of consideration in this connection. In pointing out the value of antistreptococcic serum in human practice he urged the recognition of the real organisms to be combatted: "From the clinical side," he states, "one would judge there to be very frequently more than one poison in association. This is certainly the case in many diseases. We must push our diagnosis further to include a recognition of the precise organism or organisms which have obtained lodgment in any case."

The evidence before us in numbers of reports of the results of the use of this serum in human practice shows that in certain instances its effects have been almost miraculous in their restorative power, but in others entirely useless. The report‡ of the committee appointed by the American Gynecological Society to investigate the value of antistreptococci serum in the treatment of puerperal infections contains this statement: "Experimental work has cast grave doubts upon the efficiency of anti-streptococci serum in clinical work by showing that a serum which is obtained from a given streptococcus may protect an animal from that organism but may be absolutely inefficient against another streptococcus and that the number of serums which may be prepared is limited only by the number and

* Archives de Médecine Experimentale, Tome IX. (1897), p. 833.

† Philadelphia Medical Journal, Aug. 19, 1899.

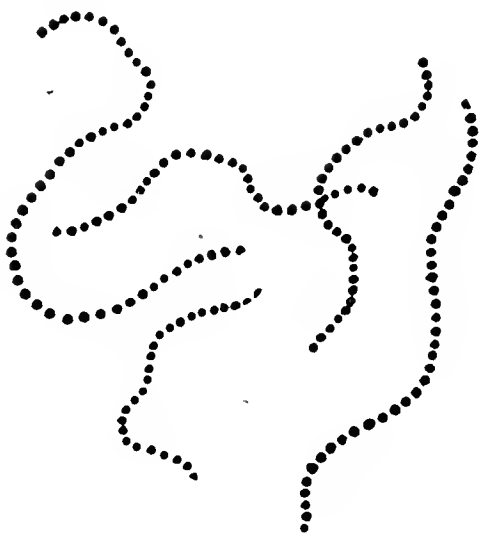
‡ *The American Journal of Obstetrics*, September, 1899. Reviewed in *Lancet*, Nov. 18, 1899.

varieties of streptococci which may exist." The committee found nothing in the literature or in their own experience to indicate that its employment will materially improve the general results in the treatment of streptococcus puerpural infection.

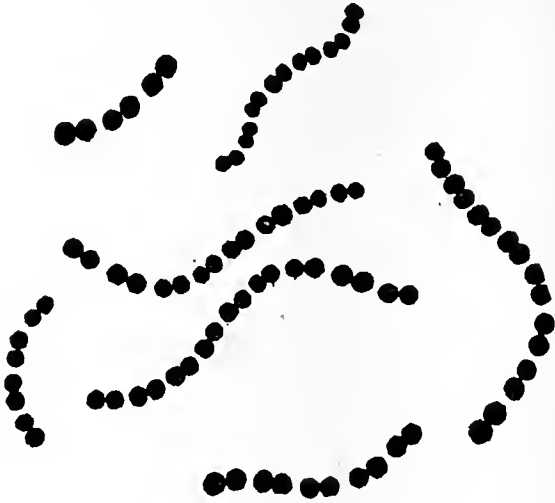
If this is the case in human medicine where, as I have already stated, there is a better knowledge of the action of the streptococci, how can we expect better results from similar methods in veterinary medicine? Our own experiments suggest further that the procuring of a serum of recognizable value from any of the virulent streptococci is not in all cases, even experimentally, easily accomplished. It seems just, both to the bacteriologist and to the practitioner, that the investigations should be continued until we are in possession of more definite and trustworthy results concerning the action of the serums prepared from different streptococci on the diseases produced by the same species, before veterinarians become too eager to risk their reputation or the money of their clients in a general and unscientific application of these expensive remedies. If, however, the results of the investigations directed towards the production of a polyvirulent serum by using all known streptococci in its preparation succeed, we may yet have a single product which will be efficient in the healing of each and all of the streptococci infections. The accumulated evidence at the present time points, (1) to the probable high efficiency of certain anti-streptococcic serums against the diseases produced by the same streptococcus and, (2) that these same serums are likely to have little or no value in diseases caused by other streptococci or other genera of bacteria. If this interpretation of the recorded results is the correct one, additional reasons for the necessity of a careful differentiation of the streptococci liable to be present in animal diseases where this remedy is to be applied are too obvious to need further explanation.

Finally, it is evident from the conflicting records concerning the morphology and the etiological significance of streptococci in the domesticated animals, that much work must yet be done

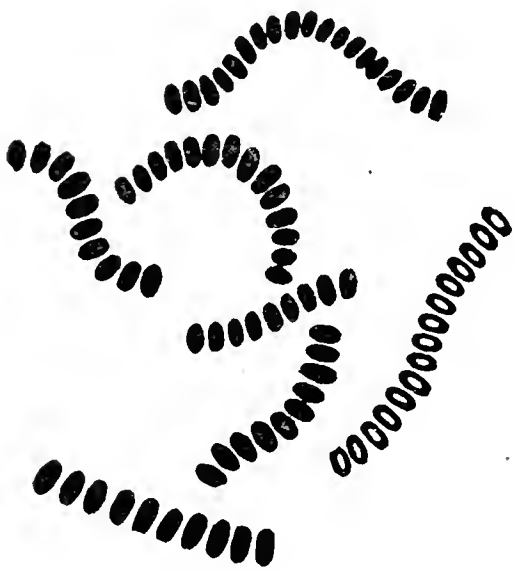
PLATE I.



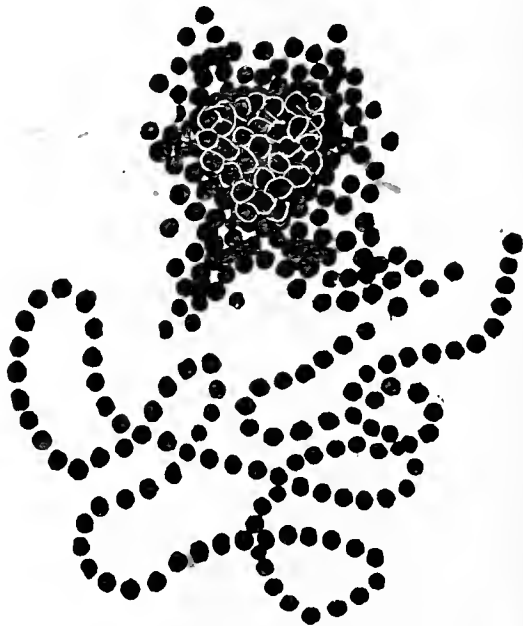
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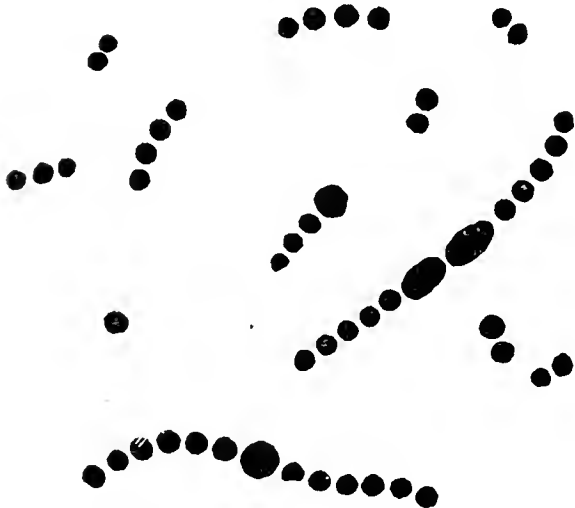
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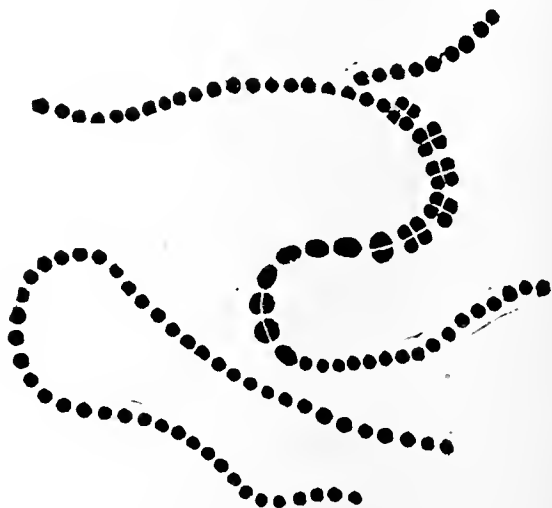
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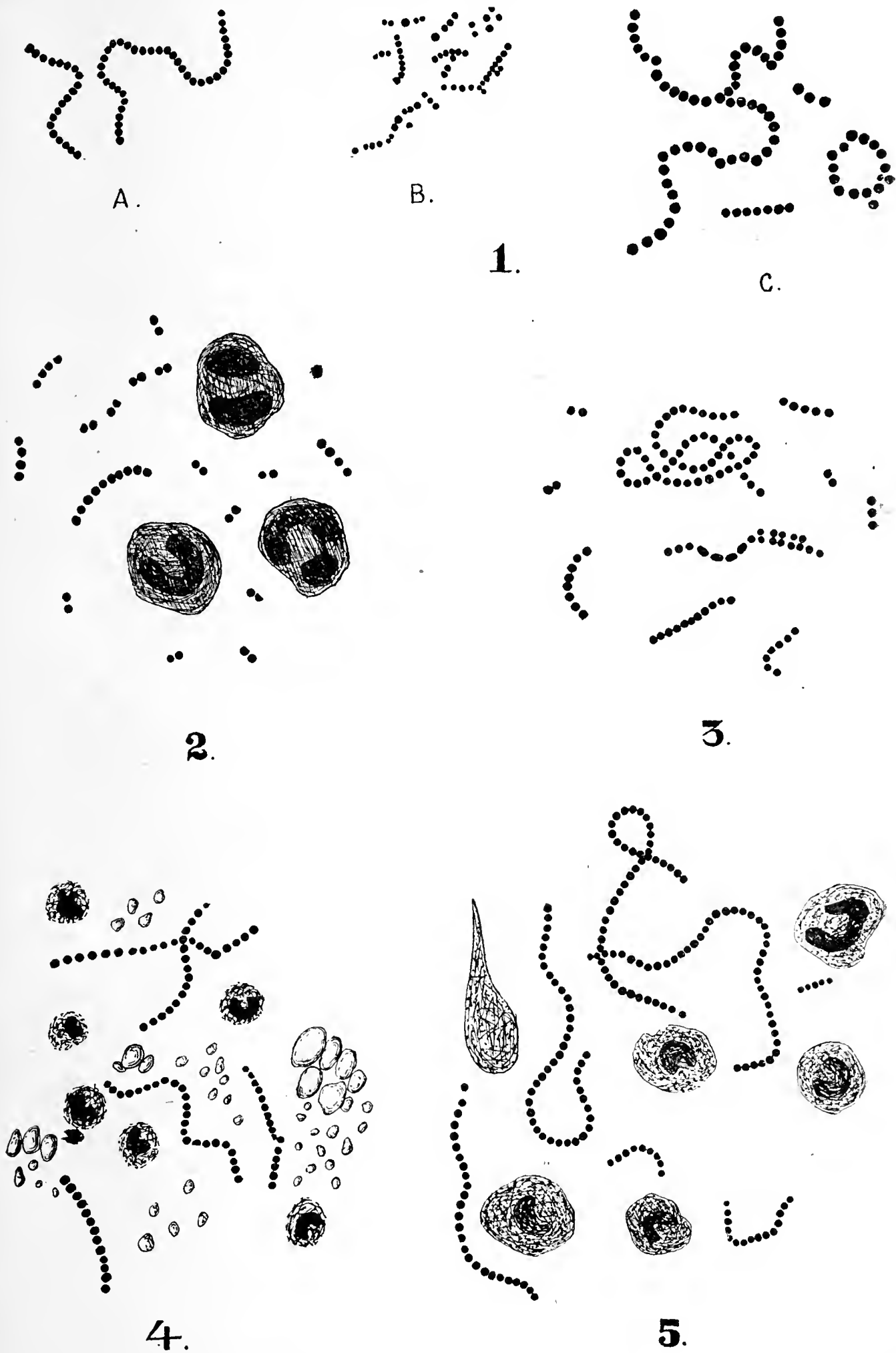


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PLATE II.

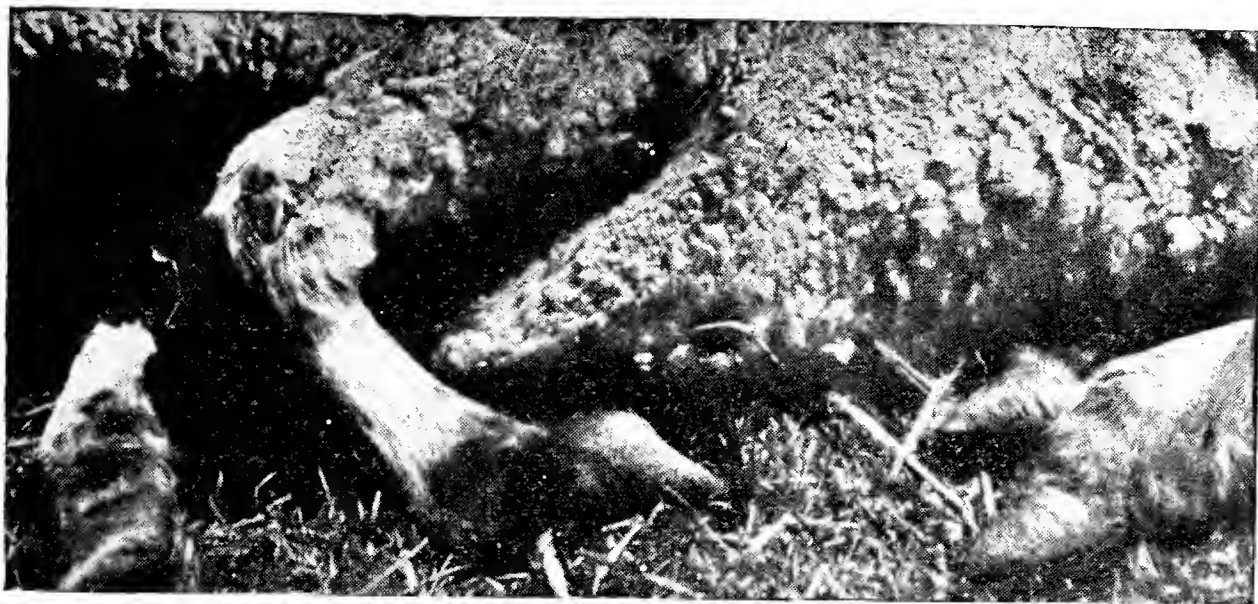


DIFFERENT SPECIES OF STREPTOCOCCI.

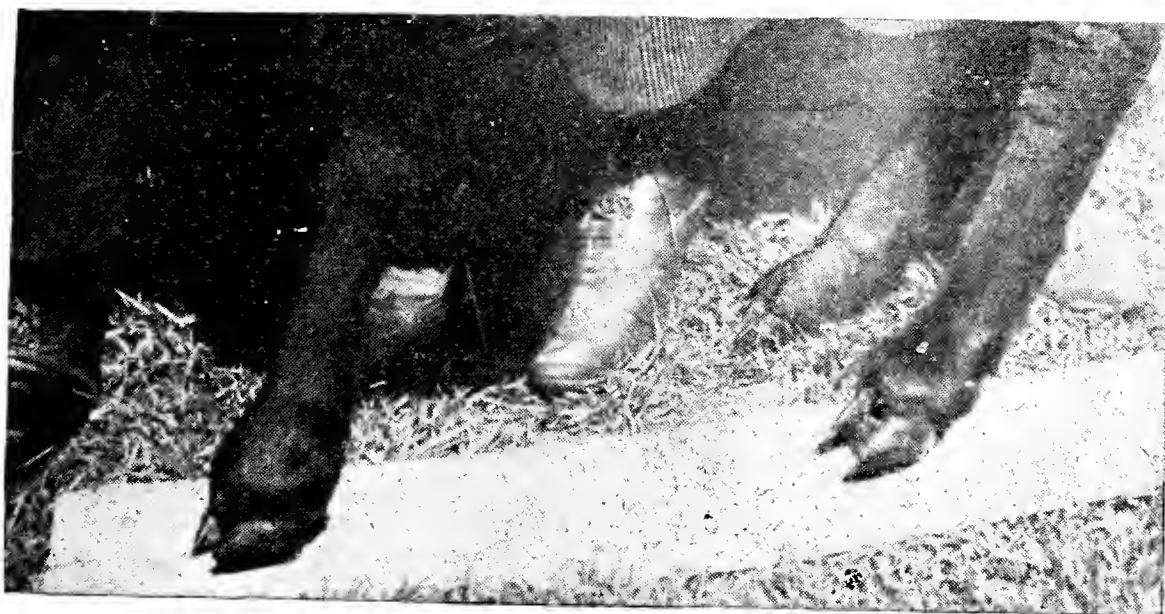
before the life history and the importance of these organisms will be fully determined. The outcome of the fragmentary examinations herein mentioned tend to the conclusion that in comparative pathology streptococci are of much more value than we have heretofore been accustomed to assign them. While the facts elicited are not sufficient to warrant very general conclusions, they have thrown some additional light upon the nature of a number of the more common septic and suppurative maladies although the evidence is not conclusive concerning their relation to any of the epizootic diseases. Attention has also been called to the variety of species, the wide distribution, and the parasitic tendencies of streptococci and to the use of antistreptococci serums, each of which calls for more extended investigations before final opinions can be recorded.

Erratum. In foot note page 777, for Bulletin No. 177 read No. 178.

PLATE III



1



2



3

SO-CALLED FOOT ROT IN SHEEP.

DESCRIPTION OF PLATES.

Plate I. This represents six phases in the morphology of streptococci.

Fig. 1. Long chains consisting of small segments arranged with equal spaces between them.

Fig. 2. Long and shorter chains in which the segments are arranged in pairs. The size of the individual segments is considerably larger than those in the long slender chains (Fig. 1).

Fig. 3. Short and longer chains where the segments are oval with the long diameter perpendicular to the long axis of the chain. These are less frequently encountered than the other forms.

Fig. 4. Long interlacing chains, also a number of chains forming a dense mass. *Streptococcus conglomeratus* is a good illustration of this form.

Fig. 5. Short and longer chains with one or more segments very much larger than the others. These enlarged elements frequently appear in short chains but they are rarely seen in long chains.

Fig. 6. Chains showing branch and also division in two planes. This is a drawing of *streptococcus pyogenes* taken from Crookshank's text book. This form of division has been observed in a few cases in this laboratory but we have not recognized branching forms. The dividing in two planes is an exception which is not satisfactorily explained.

Plate II.

Fig. 1. Drawings from Zenoni's article showing the changes occurring in the morphology of a streptococcus when cultivated on different media, (a) from bouillon, (b) from bloodserum-bouillon, and (c) from agar cultures.

Fig. 2. A drawing from a cover-glass preparation of the pus from the knee joint of a colt suffering from omphalophlebitis. It shows organisms singly, in pairs, and short chains.

Fig. 3. A drawing from a cover-glass preparation from a bouillon culture from the pus, same as Fig. 2. It shows both long and shorter chains, also one chain with division of a few segments in two planes and elongated segments.

Fig. 4. A drawing from a cover-glass preparation from the udder discharge in a case of infectious mastitis. It shows streptococci in moderately long chains.

Fig. 5. Streptococcus of strangles (after Kitt).

(Figs. 1 to 4 inclusive magnified about 1000 diameters.)

Plate III. So-called foot-rot in sheep.

Fig. I. Photograph of the feet and left knee joint of sheep No. 1.

Fig. 2. A photograph of the two left feet of sheep No. 2. From the fore foot pure cultures of the streptococcus were obtained.

Fig. 3. A photograph of the bottom of same feet showing the separation of the claws due to a thickening of the interdigital tissues.

TEN CASES OF AZOTURIA TREATED WITH POTASSIUM IODIDE.

BY T. S. CHILDS, V. S., SARATOGA SPRINGS, N. Y.

Case No. 1.—Bay mare, 10 years old, used on a business wagon, about 1100 pounds in weight; she had been down for three days. I was called in consultation by Dr. Will. Ide, the local veterinarian, to Corinth, 18 miles from Saratoga, Dec. 1, 1899. On my arrival I found the mare down, but she could get up with help, but could not stand but a very short time. On drawing the urine I made a diagnosis of azoturia. I gave potassium iodide, $\bar{3}$ ss, and $\bar{3}$ ii every two to four hours as the case indicated. I left the case resting very easily, and in a few days she was all over the disease, but she was lame from an injury she received during her struggles, and the Doctor reported to me a few days ago that she was doing very nicely, and he thought would be all ready for her regular work in a few days.

Case No. 2.—Gray gelding, about 1400 pounds, used on a candy peddling wagon, owned in Lansingburgh, N. Y. He was driven to Mechanicsville, a distance of about five miles, and went down in the street. Dr. J. Lee Shorey, the local veterinarian, was called, and he explained to the driver the serious nature of the disease and advised him to call me in the case, as he (Dr. Shorey) had just lost three cases of the same kind, and he had the help of the best veterinarian in the city of Troy and Albany, N. Y. So by Dr. Shorey's advice I was called to Mechanicsville, Saratoga Co., N. Y., Dec. 1, 1899. I had just left my other Corinth case, and arrived in Mechanicsville at 8 P.M. I found the above described case down and could not get up, and was in great pain. The Doctor had drawn the urine, and had placed hot packs to the loins. I gave at once potassium iodide, $\bar{3}$ ss, and gave $\bar{3}$ i doses every hour until midnight, at which time I left; the animal resting very quietly. The next morning at 9.30 he got upon his feet and ate a good big bran mash, and got up and down as he wished until Monday morn-

ing, at which time he went home all O. K., and since that time has been at his regular work.

Case No. 3.—A big black gelding, 11 years old, about 1300 pounds, used on a carpet wagon, owned in Saratoga Springs. I was called hastily to a case of colic and found on my arrival animal down, but could get up with help, but could not stand but a very few moments. He had colicky pains, up and down, and at last could not get up. In this case I gave aloin 3 iii, as a physic, as the animal's bowels had not acted for two days, and gave all the usual treatment, as hot packs and drawing the urine, and keeping as quiet as possible. Gave potassium iodide, 5 ss, and left 3 ii to be given every two hours for two or three doses, and 3 i to be given as indicated, that is, if very much pain should take place. The next morning the owner telephoned me that the horse was up and was so much better that I need not call; that he would let me know if he got worse. I never saw the case again, until I saw him at his regular work in the street. The driver says he drove him the third day after I was there.

Case No. 4.—A big brown gelding, one of a \$1500 pair, owned in Saratoga Springs, about 1300 pounds. Eight years old, used on a private carriage. He had not been out for a few days owing to illness of the owner. On the fourth day the coachman drove him a very short distance when he saw that all was not right, so he started back for the stable. I was called, and found the animal trembling and making very great efforts to keep his hind feet under him; hardly able to stand up on his hind legs. I gave him potassium iodide, 5 ss, and had him kept as quiet as possible. This case never went down. As the man stated that he had been constipated I gave a physic pill and drew the urine, used hot packs, and in two hours you would not have thought he had ever been ill; still I gave potassium iodide, 3 i doses, every two hours for three doses. He was so large and fat I did not want to take any chances. Gave him exercise the next day and in three days he was all ready for his regular work.

Case No. 5.—Chestnut gelding, 6 years old, 1100 pounds. This animal was owned by myself, and was one of a pair I had recently bought. He was a little thin in flesh and as I did not wish to drive a thin horse I forced his feed; for three or four days he had not been exercised as I supposed he had, as that was my instructions, but owing to cold weather the boy did not ride him, as closer inquiries brought out. As he was being saddled for his exercise the man came to the office and stated he was all stiff behind. I made an examination and found a case of azoturia. I drew the urine and gave potassium iodide, $\bar{5}$ ss, tied him up so he could not go down, and kept him very quiet, and gave potassium iodide, $\bar{3}$ ii, every two hours, and one drachm every hour for six hours, and gave sodii carbonate, $\bar{3}$ ii, in his drinking water, and took all food away from him for three days, at which time he was all right again.

Case No. 6.—Gray mare, 1200 pounds, owned in Saratoga; down and could not get up; she had been down for three or four days; she was in great pain. I gave potassium iodide, $\bar{3}$ ss, in water $\bar{3}$ viii, and gave $\bar{3}$ ii every two hours for four doses, and then $\bar{3}$ i every four hours if found necessary, and applied hot packs, drew the urine, which was dark and thick. In twenty-four hours she was up and appeared all right. This case more than surprised me, and was at her regular work in a few days.

Case No. 7.—Bay gelding, owned just out of town; had been drawing stone, but had been in the stable for three days. Yesterday he was let out into a yard for exercise; was out about three hours; then put in all right. In the middle of the night the owner heard a noise and went out and found him down, and, as he thought, cast. As he could not get up, I was called to see a very bad case of colic. I found the animal beaded in perspiration and in very great pain; he had thrashed and kicked the stalls all down. I drew the urine and made a diagnosis of azoturia, and in this case prognosed unfavorably. I gave potassium iodide, $\bar{3}$ ss, hot packs when he was quiet enough to keep them on, and gave potassium iodide in $\bar{3}$ ii doses every two

hours for six hours and then 3 i as the case indicated, and all the water he would drink, chilled. Next day I found the animal very quiet. I stopped the potassium iodide, and about 11 A. M. he got up with very little help and stayed up, and was all right in a few days. I gave nux vomica as a tonic.

Case No. 8.—Black mare, 1200 pounds, 10 years old, five miles out of town; she had been driven into town Saturday, Jan. 6, 1900, and on Sunday morning she was found down in the stall and could not get up; had not been out for two days before going to town. She was treated all day for colic, and as she could not get up the owner sent for a neighbor to help him get her up. This man had two of his horses just like this a year ago, and explained the nature of the disease to the owner, so I was sent for. The mare was down, but we got her up and she stood up pretty well for a while, but was quite shaky on her hind legs. I gave potassium iodide, $\frac{3}{4}$ ss, and left three 3 i powders, to be given one every two hours, drew the urine and left the case, not thinking it necessary for me to see it again. The next day (Monday) she was exercised a little, and next day was at her usual work, all right. This was not a very bad case.

Case No. 9.—Strawberry roan mare, 1500 pounds. On Friday, Jan. 5th, at 7 A.M., I was called to see the above described mare. Her mate had been killed a few days before, and she had been left in the stable. The owner knew the nature of the disease, and cautioned the driver, a good, faithful colored man, not to feed "Nellie" too much grain while she was standing in. His answer was, as usual, "I am giving her but very little grain." However, Jan. 4, 1900, the owner made inquiries and found that "Nellie" had not been out of the stable for four days. He ordered his man to put her with another horse and drive her about one mile just for exercise, which he did between 5 and 6 P.M. He reported to the owner that everything was all right at 7.30 P.M., but as the owner was a man that knew a good deal about the disease he instructed the man to go back at 9 P.M. and see again, which was done, and all was reported well at the stable. At 6 A.M., Jan. 5th, when the

driver arrived at the stable he found things all right. He fed, and, as he was cleaning up, he saw that this mare was not just right; so he at once called the owner. As soon as he saw her he knew it was azoturia. So I was sent for. On my arrival I found the above described mare struggling very hard to keep her hind legs under her, which she failed to do, and at last went down. She was in very great pain. I gave her the usual treatment, such as hot packs, drawing urine, and gave potassium iodide $\frac{3}{4}$ ss, and gave it in doses as the case indicated during the day. The owner of this animal was a very good friend of mine, and I did not want to leave anything undone in the way of saving the mare. I explained to him the success I had had with the new treatment, and as he is a man that is very well up on medicine he decided to let me go on with the potassium iodide treatment, which was a great success, and the mare made a good recovery from the disease, and the fourth and fifth days she got up and ate well and would lay down and get up as she wished; was up and walked around for seven hours one day, but by some bad management, or rather bad advice, the mare was roped and slung so much the first three days that she had bruised her near knee so badly that suppuration took place, and it terminated in an open joint. So on Monday, Jan. 15th, it was decided best to destroy her, which was done by shooting her. This case was all right, and the owner is satisfied that had she not been slung and roped up so much the first three or four days that she would have lived and gotten well from the disease, but we as veterinarians understand how in some cases animals lose their lives by mistaken kindness on the part of over-zealous neighbors and friends.

Case No. 10.—I have lost my notes on this case, but I remember that it had about all the usual azoturia symptoms, and I gave it the potassium iodide treatment, and it got well.

Last September, when I was away on my vacation, I visited Dr. Bland and Dr. Keeley, of Waterbury. I received some good pointers on the above disease and treatment while visiting Dr. J. H. Kelly, at New Haven, Conn. He received a tele-

phone to go to West Haven to see a case with the history of azoturia. It was a gray gelding, one of a four-horse team that went into the woods to draw wood down for a brick yard. Had been in the woods and got down on the main road, out back of Whitneyville. The Doctor asked me to go and see his case. I asked him what his success was in treating azoturia, to which he replied: "I hardly ever lose a case; I find them very desirable to treat." Well I must say from my previous experience and knowledge of the disease, and taking the history into account, I thought it a very foolish ride, but the Doctor was so positive about his case, I decided to take the fifteen-mile ride. On our arrival we found a gray gelding, about 1300 pounds, down, or rather just getting up, with quite a little help; the Doctor helped him up, and drew the urine, and got him to a near-by stable. He gave him some white powder and left some more to be given in his drinking water. Next day the horse went home, three miles. On our way back I asked the Doctor what the powder was; he told me it was potassium iodide. That was about the first I knew of this treatment for azoturia. The Doctor had another case next day, but I had to go to New York, and did not see it then, but ten days later on my way back I went out with the Doctor and saw his case. It was all over the disease, but in its struggle it fractured the shaft of the ilium, but was doing very nicely. On my arrival home I found my September REVIEW, and in due time found the article written by Dr. McClanahan, of Redding, Iowa, giving his experience with potassium iodide. He had only three cases at that time. Now I give my experiences with it. I hope in the near future to hear from others. I have about pinned my faith to it. From my past experience with it, I think this drug can be carried too far, as all others, but to take it all in all it has given me the best results, and I will continue to use it for the present. I wrote to Dr. Kelly and Dr. McClanahan, telling them of my success, but I feel as if every REVIEW reader should have my experience in this heretofore dreaded disease.

THE TEACHING OF PRACTICAL SURGERY.

BY W. L. WILLIAMS, V. S., ITHACA, N. Y.

A Paper read before the New York State Veterinary Medical Society, September, 1899.

It may sound superfluous to intimate by our title that some surgical teaching may be unpractical, but we feel warranted in retaining the term partly owing to tradition, and in part the existence of confirmatory facts.

The young veterinarian frequently meets with the rebuff that he is wholly wanting in experience and that college teaching can avail nothing until practical experience has been added.

Too often the criticism is just, the education received at college having been unpractical, necessitating his educating himself in a practical way before his services become acceptable to the public. Practical surgery is that which can best relieve suffering, enhance value or restore usefulness.

Practical surgery is scientific surgery, and to teach it to receptive students is to present the subject in a scientific manner under the best possible surroundings.

Recent years have witnessed a great revolution in the teaching of sciences, especially in biology, the text-book and lecture having been rapidly and constantly yielding largely to the laboratory, a change which has so universally commended itself to teachers of repute, that its preëminent value over the older methods has passed beyond the field of discussion.

A lecture is a word picture, perhaps illustrated by a drawing, model or other preparation, while the laboratory brings the student into the most intimate relation possible with the object of his study, enabling him to observe size, form, structure and function for himself, and in surgical science he is led to observe the cause, symptoms and course of disease, and the influence of surgical interference upon the patient, disease or organ.

The teaching of practical surgery requires in addition to the needed amount of lectures, such laboratory work as will

best fit the student to discharge his duties as a learned member of his community.

This laboratory teaching is extensive, including descriptive and surgical anatomy, physiology, histology, bacteriology, pathology and finally clinical surgery, or as we commonly express it, practical surgery.

We need only glance at the announcements of our colleges to discover that they are nominally a unit as to the comparative value of clinical surgery, nearly all of them announcing *unsurpassed*, and a number of them *unequalled* clinical teaching facilities.

Yet it must be confessed that whether they possess the facilities or not, some of them do not teach practical surgery at all, and virtually confess it. They evade their responsibility in a variety of ways.

The veterinary college having the greatest number of graduates in America, evades its duty by demanding that the students shall spend their one summer vacation with private practitioners, evidently for the purpose of learning practical surgery, which would be unnecessary if it were taught in the college. The college thus unloads upon practitioners a very grave responsibility, and assumes the position that while there are only two or three professors fitted to tell students in lectures what they will see in practice, any horse doctor is good enough to teach them the really practical part of the subject. We do not know how many practitioners have contributed toward educating the students of this college, but they probably reach in the aggregate 2500 to 5000—the largest unpaid faculty of clinical professors in the world.

Other colleges evade their duty by advising or winking clandestinely at students practicing on their own account during their vacations, claiming that such a course is as advantageous as clinical instruction with some of the members of the large faculty above cited. This shifts the responsibility for practical education upon the student himself.

Some erroneously call self-educated veterinarians charlatans or horse doctors, while to those having a certificate that they

were educated in a veterinary school they apply the alleged more reputable title of veterinarian, but when the certificate of college education is defective, and what practical knowledge the man possesses has been acquired by his own unaided effort, or with the aid of a similarly uneducated graduate, the above differentiation between veterinarian and quack becomes badly strained, and suggests that we may have among us quacks with college diplomas, but since within a decade a prominent member was ignominiously expelled from the United States Medical Association for stating that a large percentage of veterinarians in this country should feel honored by the appellation of "horse doctor," it is perhaps wise to not follow this line of thought farther. Nor is it just. The self-educated veterinarian deserves praise whether he has a diploma or not, and the uneducated practitioner is none the less pitiable or odious by having a diploma.

A certificate of graduation from a veterinary school should at the present day be logically regarded as including a practical knowledge of surgery, and the school which fails to impart it robs the student, insults modern education, and degrades veterinary science.

Teaching practical veterinary surgery offers serious obstacles, which under their environments may be insurmountable to some schools, but while this may enlist our sympathies it does not alter the duty of the school to the student, profession or public. Neither need we apologetically say of the recent past, that the colleges did the best they knew or could afford. We face the present and future. We are rapidly passing through an important transition period, from conjecture to knowledge, from empiricism to science, from theory to practice.

Within ten years more the ignorant, uncouth, unclean quack will have disappeared, except as a rare curiosity. The ordinary non-progressive veterinarian of to-day will be the charlatan of 1910, and between him and the front rank of the profession will exist a wider gulf than he now pictures in lurid colors between himself and the quack of to-day.

The unequivocal demands of to-day are that, as with other related subjects, surgical teaching shall be practical, and that practical surgery shall be taught in the college by competent teachers, with ample equipment, and abundant material of a high order.

The proper teaching of practical surgery, like all laboratory work, is enormously expensive in money, time and labor.

The lecturer can graphically describe numerous extensive surgical procedures in less time than a student can properly clean his finger nails for an operation. No school requiring a maximum of but twelve months attendance for graduation can undertake anything more than farcical clinical instruction. They must, and do evade laboratories, except perhaps creditable dissecting rooms and a few others, but no student can in the time given possibly take up the work in a creditable manner in each of the numerous laboratories. In a course of 18 months the student must fall lamentably short of the practical study his later career will demand, and those requiring 27 months, the longest course maintained in this country, must confess their inadequacy.

Laboratory teaching of surgery multiplies the labor of the teacher, and requires greater ability, or rather his competency is put to a more exacting test.

It is easier, and at times possibly safer, to ask a student to accept a statement on faith than to have him work it out and prove it for himself in the laboratory.

Practical surgery may be taught in a variety of ways, only the more important of which we shall attempt to discuss.

We may consider the subject in two fundamental groups according to the material used for instruction purposes:

A. The cadaver.

B. The living animal.

The former is the more primitive, having been early introduced in the teaching of human surgery, and still maintaining an important position in surgical teaching. It retains all the value it ever possessed, though somewhat dimmed by the advent of other more modern methods which bring the student

into yet closer relation to the living object of his study.

In reality it belongs rather to the domain of surgical or regional anatomy, the importance of teaching which should in no wise be underestimated. It gives the student a training in surgical anatomy essential to surgical procedure, he learns the location and relations of parts or organs, and observes the post-mortem form, volume and texture of parts from which he may draw valuable conclusions regarding their character in the living world.

This teaching, call it surgical anatomy, clinical or operative surgery, should be well and extensively taught, each student being required to demonstrate his anatomical knowledge of the parts concerned in the more common of our surgical operations, repeating again and again as often as may be necessary the imitation of each operation until familiar with it.

An especially commendable course of this kind is that practiced at the University of Pennsylvania, under the able direction of Professor Adams. His course consists of 100 operations, many of which are repetitions, thus reducing the actual separate operations to the neighborhood of 50, nearly all of which are performed on the cadaver. His list includes a very large proportion of the classifiable surgical operations, omitting some which other teachers would insert, including a few which some would incline to omit.

An especially commendable feature of his plan is to have the operations carried out in as good imitation as practicable of the real procedure, and as quickly as possible after destroying the animal by bleeding or pithing. The plan is moreover inexpensive, and the time required of the student for carrying it out is comparatively brief.

It has very evident shortcomings, it fails to familiarize the student with the character and behavior of living parts under surgical interference; he learns neither to avoid nor control hæmorrhage, to guard against the contractions of muscles, to avoid the evil consequences of the struggles of the patient, and even fails to learn the form and exact location of some organs

during life, while tactile sensation, the indispensable guide in intra-abdominal surgery fails him entirely. Neither can he observe the character of parts in a diseased state, nor form an adequate idea of the difficulties met with in operating upon such. Such a course is neither sufficient nor designed to complete the student's education in practical surgery, but merely constitutes an essential and invaluable course of training, occupying logically a place between descriptive anatomy and operative surgery proper.

In our second group, the living animal, the method may vary widely. The operation may be performed by the teacher or the student.

The teacher may perform the operation, the student acting as a spectator. This constitutes the highest available form of teaching human clinical surgery and in veterinary education naturally holds an important place. Here the student sees the actual operation upon the living animal usually with curative intent. This form of teaching we might call lecture instruction with the most intense illustration possible. It is of equal importance to the foregoing, having a special value in all those operations which are wholly open and visible, but are very inferior in concealed procedures carried on within the body cavities of the patient.

In all cases it falls short of being genuine laboratory work for the student and fails to train him as an operator.

Having been so long the highest type of teaching human clinical surgery some veterinary teachers contend that if it is good enough for surgeons it should answer for veterinarians. We cannot agree. We are placed at numerous disadvantages compared with human surgeons and possess some material advantages which we should eagerly seize in order to bring our opportunities to a par with theirs. Undeniably nothing teaches a student to do a thing so well as doing it properly himself under competent guidance.

Here again we have to choose between two classes of material, worthless subjects to be destroyed as soon as they have

served the purposes of teaching, and patients of commercial value affected with a malady which it is desired to cure or alleviate, or a sound animal which it is desired to in some way modify to better serve the uses or whims of man.

Operations by the student upon comparatively worthless subjects are of very great value in surgical teaching, especially when carried out methodically as by Prof. Cadiot at Alfort. Here the student is brought into direct contact with nearly all the conditions of actual practice, the technique and methods can be effectively taught, he acquires tactile education, enabling him to recognize various organs by touch and to distinguish in the same manner diseased from healthy tissues or organs, he acquires actual experience in the control of hæmorrhage, in the guidance of the hand, and the resistance offered by various tissues to the knife or other instrument. In many operations like neurectomy all essential educational conditions are present.

The chief objections which can be urged against this method of teaching are:

1st. Its cruelty.

2d. Its failure to acquaint the student with pathological conditions.

3d. It fails to awaken that enthusiasm on the part of the student which is essential to the highest effort.

Perhaps the most serious of these is the contention that it is cruel. This may or not be and the cruelty may be material or immaterial.

In the Alfort surgical exercises the subject is operated upon under complete general anæsthesia, and destroyed during the period of insensibility. Under these conditions we fail to see any cruelty. We take worn-out animals, perhaps buy them from the harness and goad, where their lives have for a long time been an unending period of suffering, with harsh driver, insufficient food, insalubrious stable, death or an asylum for aged horses the only source of escape from pain and suffering. In most cases death comes slowly and has been well advanced before the application of the goad ceases, but by such a system

of management as suggested above, the moment of complete anæsthesia shuts out forever all pain and suffering and though theoretically he continues to live for a time, from the standpoint of humanity he has ceased to exist. While the subject is free from all pain the student acquires experience which enables him to effectively relieve suffering and disability in other animals, and has acquired his education without the infliction of pain.

For such a course a regular curriculum can and should be arranged, and should preferably be made progressive, the student advancing step by step from the simpler to the more complex operations. Any operation which can be carried out upon the cadaver with equal value to the student should be excluded from the list.

Complete anæsthesia should be secured and maintained for all painful operations, and if recovery of sensibility would involve material pain as a consequence of the operation the subject should be destroyed without regaining consciousness. Such a method should, and we believe would commend the approval of humane and antivivisection societies generally, though, of course, not satisfying some of the more radical individuals. Certainly it is more humane than the bungling which falls little short of butchery, indulged in by ineffectively educated veterinarians in the earlier years of practice.

The second objection applies only in part, Neurectomy is practically the same from an operative standpoint on a sound or unsound member, the operation being generally performed upon a part distant from the lesion it is intended to influence. In other cases the objection is serious, as for instance, cunean tenotomy for the cure of spavin is quite different in the healthy and diseased hock.

The third objection is constant and serious. It is difficult to awaken the required enthusiasm in the student over what he may term a "play" operation, and the acquiring of carelessness in technique, procedure or form in such a practice operation is strongly prone to unfavorably influence his later work as a sur-

geon. The teacher must then enforce to the highest possible degree the most careful technique in every detail.

As teachers we can go one step higher, and teach clinical surgery upon patients of value, with the student as operator. It has the immeasurable advantage of having the student do under the teacher's direction, precisely what he is to accomplish later without supervision other than the critical public eye. The disadvantages noted in operating upon worthless subjects are severally removed. It is not cruel, according to humanitarian ideas because it is intended to benefit the animal or its owner, it puts the student into direct contact with the diseased part itself, and he has a definite, beneficent object in view, calculated to fully arouse the proper enthusiasm in any but a pitifully dull student. It is the only way to teach covered surgery. A student can learn to castrate cryptorchids only by castrating them, and what is true of this operation, is more or less so of others. This method too has its objectionable features.

1. It does not admit of a regularly arranged curriculum.
2. It requires much time of the teacher, and places much responsibility upon him.
3. It may be less safe for the patient.

The first objection is not serious. The practitioner can make no curriculum, he can not on one day have a spavin to fire, on the next median neurectomy, and on the third the removal of the lateral cartilage for the cure of quittor, but must accept cases as they come, and adapt himself to the work at hand. Clinical instruction can be graded approximately. All may take part in physical diagnosis, in securing the animal, in dressing wounds, and the least experienced students can be initiated into the simpler operations, and carried forward to the more complex or detained for further repetition upon the simpler, as his progress may dictate.

The second objection relates wholly to the teacher and college. Clinical instruction by such a method places the instruc-

tor in an exceedingly trying position, he being in a measure responsible to the owner for any error or carelessness on the part of the student, along with his duty to see that the student gets the greatest possible benefit from the operation he is conducting. We have experienced no more trying ordeal than standing by while a student for the first time performs ovariotomy upon a valuable mare, the essential part of the operation being wholly concealed from view, until the ovary or some other part mistaken for it is brought out by the operator.

Yet it is practicable, and has been so proven by us. As the student progresses from one operation to another, acquiring skill and confidence at each step, the teacher is fully warranted in confiding in his ability, coolness, and resource to properly accomplish an operation which the instructor can not follow with his eye.

The third objection we note is the increased danger to the animal. This can be answered from varying points of view. If a student can not safely perform an operation under the guidance of his teacher, how can he be expected to do it well without his supervision after graduation? But one answer is possible.

We are, moreover, in a position to maintain that student operations under the eye of an instructor are not extra-hazardous to the patient.

Owing to a comparatively limited clinic in numbers, though unusually rich in variety, the New York State Veterinary College has, in order to get the highest possible results from clinical teaching, adhered closely from the foundation of the school to student operations, with the result that so far as we have been able to observe our results are fully up to the average in veterinary practice, and infinitely superior to that of many private practitioners.

We can not enter into details, but must confine ourselves to a single line of cases, which being sound animals offer a safe basis for consideration. We select the operation of spaying on bitch, cat and mare, and submit the following results.

FIRST YEAR.			
Animal.	No.	Fatalities.	Cause of Fatality.
Bitch	26	0	Sepsis
Cat.	2	1	
Mare	1	0	
	—		
	29		

SECOND YEAR.			
Bitch	67	3	2 Sepsis, 1 hæmorrhage
Cat	8	1	1 Impure chloroform
Mare	7		
	—		
	82		

THIRD YEAR.			
Bitch	77	0	Chloroform
Cat	13	1	
Mare	8	0	
	—		
	98		
	—	—	
Total	209	6	

Percentage of fatalities for three years, 2.87.

The fatal sepsis in the cat during the first year was partially explainable perhaps by the state of advanced pregnancy of the patient, as well as an accident during the operation. When partially recovering from anæsthesia she bit the operator severely in the hand, disturbing rather abruptly aseptic plans and technique.

The two cases of fatal sepsis in bitches during the second year were undoubtedly due to imperfect cleansing of the operator's hands, the part of surgical technique which we find most difficult of all to teach effectively to students.

By redoubling our efforts and improving our methods, our last year with 98 cases has been managed without a fatal case of sepsis.

The fatality in the bitch from hæmorrhage was due to the operator becoming in some way confused when our attention was temporarily directed elsewhere, and for some unexplainable cause tore in two the iliac artery.

The two chloroform fatalities both occurred in cats, one clearly due to impure chloroform, the quality of which had not

been suspected until after the accident, when chemical tests clearly demonstrated its impurity.

The second cat was chloroformed in a box which had been previously used for killing cats with illuminating gas.

Considering that these results have been attained in a new institution under a wholly inexperienced teacher of surgery, we believe it must be admitted that student operations are not extra-hazardous.

Certainly we shall not permit some of the accidents related above to recur, but shall constantly endeavor to fortify our methods with every possible safeguard which experience can suggest. Were we to view our results above tabulated from the commercial standpoint of the owner, rating the spaying of bitches and cats at \$1.00 and the mares at \$10.00 each and estimating the value of the cats and dogs which succumbed at \$2.50 each, by securing free operations the owners have saved \$338.00 in fees over all losses suffered, assuming that there would have been no casualties at all had the operations been performed by graduates instead of students.

In the meantime students enter upon their work with the highest enthusiasm, feeling that they are doing actual practice with definite results of value as their goal, and they vie good naturedly with each other in the aseptic or rapid healing of the wounds they have made, each student following and caring for his case which is detained in the hospital.

At the same time each student sees much of every operation, appreciates the errors and difficulties encountered by his fellows and seeks a way to avoid them for himself.

These among other considerations lead us to believe that after the proper preparation in anatomy, histology, pathology, and other foundation studies, a proper course in practical surgery should consist in addition to all that can be shown by the teacher in the lecture room or by operating upon animals in the presence of the students, of the following laboratory work by the student himself under proper supervision, in properly arranged course in logical sequence.

1. Operations upon the cadaver or surgical anatomy.
2. Operations upon cheap subjects, under anæsthesia, full details of technique being carefully observed, the animal to be destroyed while under anæsthesia, or by other means, having due regard for humanitarian ideas—we might denominate this surgical exercises.

3. Carefully graded operations upon patients with definite valuable results in view; which we may distinguish as clinical surgery proper. In this latter course it is requisite to the highest results to have ample hospital accommodations where all major cases can be detained and the results minutely followed by the student. We require each student to keep daily records of cases in his charge to be properly filed in the clinical archives of the school.

The subject needs much study and elaboration. The course of exercises on the cadaver designed by Professor Adams is admirable, while the little volumes of Pfeiffer "Operations-Cursus" and Cadiot's "Exercices de Chirurgie Hippique," the latter of which has been badly translated into English, offer suggestions of great value to teachers. These two little volumes should be carefully translated into English and made available for American students.

We hope that the near future will see a thorough awakening in the methods of teaching animal surgery, resulting in better technique, better results and very much higher attainments in the profession at large.

EUROPHEN AS A SURGICAL DRESSING.

BY COLEMAN NOCKOLDS, V. S., M. D., GRAND RAPIDS, MICH.

Among the many newer preparations used as dry dressings in veterinary practice, europHEN stands out prominently as one of the best. It is not only a powerful antiseptic, its properties in that line being more pronounced than iodoform, but is comparatively non-poisonous. Although containing 28 per cent. of iodine, it liberates it so gradually when applied to secreting

surfaces that no toxic effects are observed. Europhen is resinous and adheres to the wound or part to which applied, which is of great advantage in our practice, because of the liability of the dressings to become disturbed by our patients. The europhen adhering forms a protective covering as well as a medicant. It is light and spreads over a surface five times greater than the same amount of iodoform. Being non-toxic, there are none of those outward symptoms present which so often follow the application of many surgical dressings, especially in the dog and cat. It has but slight odor, which makes it preferable, especially in the treatment of house pets. As a surgical dressing, especially for the smaller animals, it has no superior.

I prefer europhen to all other dusting powders as an application to the abdominal wound in ovariectomies. Sprinkled, or what is better, applied with a powder blower, to the orbital cavity, and upon gauze used to pack it after enucleation of the eye-ball in any of our animals, have always been followed by most satisfactory results. In ophthalmia, either simple or traumatic, simple leucoma, simple keratitis and wounds of the conjunctiva and cornea, europhen, gm. 4.00; lanolin, gm. 32.00, applied to eye or used alternately with astringents, etc., as indicated, will give pleasing results. For otitis externa, and other diseases of external auditory canal, a good application consists of europhen and boric acid, equal parts, applied with a blower after cleansing the parts. In abscesses, following the use of peroxide of hydrogen, the cavity can be sprinkled with europhen and packed with gauze. For wounds following surgical operations on fistulæ, removing tumors, for the treatment of ulcerations, incised, contused, or lacerated wounds, abrasions of the nasal mucous membrane, europhen is an ideal dressing, promoting the formation of granulation tissue, allaying irritation and maintaining as nearly an aseptic state as is possible in our practice; europhen, 1 part, olive oil, 7 parts, is a good application for burns and eruptive skin diseases of the horse and dog.

REPORTS OF CASES.

“ Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.”

CASES OCCURRING IN AN ILLINOIS PRACTICE.*

By HUGH THOMSON, V. S., Shabbona, Ill.

Being requested by our worthy President to prepare a paper or report of cases, I choose for my subjects the following three interesting cases :

Volvulus Relieved by Rolling.

Bay mare, owned by a farmer south of Waterman, about 1400 pounds. Questioning him closely in regard to the case, I found she had gotten loose at night, entered the corn crib, and was found in the morning sick with colic. She was given the regular farm remedies (saleratus and vinegar, spirits of nitre and tincture of opium) and turned into the yard, where she rolled and tumbled all day. In the evening he called on me. Being busy at the time, I sent out a dose of barium chloride, with simple syrup and water, to be followed in half an hour with cannabis indica and aconite. I told him I would get there as soon as I could, which I did in about three hours. On questioning him closely I got the history as written ; symptoms as I found them, pulse 96, temperature 103°, respirations very distressed. She would get against the side of the stall and slide down, striking the floor hard ; would gather her limbs under her, with the front feet resting on the floor, knees raised, hold her head between her knees a few minutes, then in a little while sit on her haunches, with her head raised high in the air and stay this way a few minutes ; then arise, slide down the side of the stall, and so on. I found out that the barium had not acted except to neutralize the gases that had been present, as the owner said there had been no passage of fæces or flatus. I gave an injection of glycerine, which passed out in a couple of minutes, being slightly colored ; gave more cannabis indica and aconite ; then followed with an injection of soap and warm water. Concluding that I had a case of misplaced bowel, I gave my prognosis, telling him there was only one chance, and that was to induce the mare to roll, and it might make a change. So we chose a nice place by a haystack ; gave an

* Read before the Illinois State Veterinary Medical Association, Nov. 15, 1899.

intravenous injection of barium chloride, and turned her loose. She began rolling and rolled on her back, with feet against the stack, and all of a sudden you could hear a noise like something dropping in a tub of water; then flatus and fæces both passed. She laid this way for about fifteen minutes, then got on her feet and began picking hay, flatus passing occasionally. I stayed all night and left in the morning, the patient being well.

Another Case of Torsion of Intestine Recovers.

This case was near Leland, and the history is about the same as the preceding case. When seen by me I found the patient, a brown mare, bloated, standing quiet, pulse quick and weak, breathing hard, vulva showing considerable swelling, with inflammation as if salt had been used in trying to make her urinate. This they denied emphatically. Examination per rectum revealed a swelling so large I could not get my hand in at all. I tried about ten minutes, then I decided I had a twist to handle. The cutting off of the circulation was the cause of the vulva symptoms. I punctured, gave barium chloride, but getting no action tried eserine and pilocarpine, given as a stimulant. Getting no action, I left some sodium salicylate, also gelsemium, to be followed by small doses of aconite. Before leaving I gave four capsules of charcoal, sealed tight, using the process mentioned in the REVIEW. I left word that if she died, which I believed she would, to notify me, so I could hold a post-mortem. I heard nothing for about two days, when I was requested to call and see her, which I did. I found her having muscular spasms, and on examination by rectum found the bowels moving, swelling all gone, no obstruction to prevent entrance, pulse and temperature normal, also respirations. I left gelsemium and bromide to be given. Case made complete recovery.

Peculiar Symptoms in a Heifer.

Two-year old heifer, in the town of Milan, had been sick a week. She was so weak she could hardly walk without falling, constantly straining as if she was trying to give birth. Her bowels were rather loose. She showed no indication of being in calf. Examination by rectum showed nothing. Could only get three fingers in the vagina, which seemed on the floor by the neck of the bladder to be swollen. I came to the conclusion that she must have been injured by the bull, so I gave an oil and opium injection, leaving some to be given occasionally,

also aconite and cannabis indica to be given along with flaxseed tea; put hot applications over the loins and to report in a couple of days, which the owner did, saying she had lost all appetite, strained continually, bowels watery, very weak and dying. I then tried homeopathic doses of arsenicum and nux alternately, with the result that the straining soon began to cease, bowels checked, appetite returned and she is now well.

A Recovery Without a Diagnosis and Against a Prognosis.

Durham bull, four years old, which a party near Lee, Ill., (Mr. Cofield) borrowed from Mr. Heeg, of Shabbona, and had him a little over a month, ate and drank very little the first week, when he stopped entirely. A swelling appeared on the lower part of the neck along the œsophagus. It gradually got larger till it was a foot long and as thick as a closed fist. Mr. S., thinking he was suffering from choke, passed a whip, which met with no resistance and passed the enlargement. So he turned the bull out to die, sending word to the owner, who called on me, and gave me what symptoms he had received. Refusing to pass my opinion without seeing the case, he departed, and I did not hear from him for some time, when Mr. Heeg called and said the bull was so poor and weak he could hardly rise when down, and asked me to call and see him, which I did. Not being able to decide whether it was a case of actinomycosis or choke, I concluded to operate, which I did, shaving and thoroughly disinfecting with bichloride. I laid him down, made an incision about sixteen inches long through skin, muscles and œsophagus. Finding no foreign body, I decided it must be due to the actinomyces fungus and advised destruction. The owner objected and told me to stitch him up and let him live as long as he could. So I used a strong creolin wash, about two quarts; let it flow slowly by pressing the sponge gently till it was all used, taking deep stitches in the muscles and skin, not touching the œsophagus. After the parts were thoroughly wiped, I applied a thick coating of tar, and then turned him out to die, leaving a solution of potassium iodide, ℥iv , aqua Oii, tablespoonful three times a day. What was my surprise to meet Mr. Cofield's boy three days afterwards, who told me that on that morning the bull went to the tank and drank a little water, and he did not see any of it vomited; and that the swelling was disappearing. About two weeks after I met Mr. Cofield, and he told me Mr. Heeg had taken the bull home, and he was getting along finely; they had cut the stitches and the wound had healed by first intention. I

saw the owner Saturday, Oct. 28th, and he said he was taking on flesh fast and was running with his cattle, feeling good and full of life, eating and drinking all he wanted, and the enlargement was all gone. This case to me is truly remarkable, so I concluded to bring it before the association.

DILATING THE OS UTERI AND IMPREGNATORS.

By FRANCIS ABELE, Quincy, Mass.

Have been called to many cases of nymphomania. In most cases I find the os closed, the passage through the neck tortuous and gnarled. In some, excellent results follow dilatation from the finger before service from the bull. In some only a small part of the passage can be started in one day. Advantage gained can be held by a plug of oiled cotton and the rest of the dilation done later. Have tried to dilate with mechanical appliances, but as the os is apt to be curled upwards, puncture is apt to enter the abdomen, producing no benefit but possible harm.

A mare that had bred regularly and then stopped for two years I treated and she again bred.

Would this happen if the female were served at first heat after parturition? It is usually found in an animal that has had a rest.

Patent impregnators were once used, but if you can't get your finger or even a probe through, how can you get the impregnator through? If you cut with a knife, what prevents cutting completely through the sides or ends of the same and entering the abdominal cavity without making the connection sought?

Tried spring dilators with best success, but even that is not sure. I hear of many fine milch cows beefed because of barrenness. In a dairy district where hay is \$20 a ton and every pound of feed is bought, every inch of space of great value and all labor calls for cash, a barren cow is a big loss, and if a sure cure can be had, a dairyman would pay well for it.

It seems to me that the bulk of our literature on the subject is the advertisements of dealers. What is the proportion of cures?

PHYSIC A PREVENTIVE FOR PARTURIENT APOPLEXY.

By FRANCIS ABELE, V. S., Quincy, Mass.

I have usually told dairymen that if a cow is given a good cathartic just after calving, parturient apoplexy is warded off.

A little over a year ago I was called to a parturient apoplexy case in a very valuable Jersey ; Brewer stock. What seemed a hopeless case, by treatment and excellent nursing, recovered. This year the cathartic was given, and a mild case only followed ; such as weakness in hind parts and slight drowsiness.

Another cow of same herd calved, received a good cathartic, developed a nice case of parturient apoplexy combined with diarrhoea and enteritis. This merely shows very forcibly that the physic does not necessarily prevent the disease at onset, although I could cite many cases to show a benefit.

THE ETIOLOGY AND PREVENTION OF SHOE-BOIL.

By A. W. BAKER, V. S., Brasher Falls, N. Y.

I think Dr. George J. Goubeaud is on the right track regarding the cause of shoe-boils, and am myself of the opinion that they are not always the result of the horse lying with the elbow resting on the shoe, as I have seen them on horses that had their shoes removed and the feet packed. I found in one case in my infirmary that the elbow rested on the floor and did not come in contact with the shoe or foot. At first, at a loss to remedy this evil, I finally overcame it by taking a pad six inches thick, eight inches wide, and sixteen inches long, which I put across the sternum behind the elbows, and fastened it securely there by means of a surcingle tightly fastened. The result was so satisfactory that I have ever since employed it ; also after operating on a shoe-boil that has become fibrous.

DEPARTMENT OF SURGERY.

By L. A. AND E. MERRILLAT,

of the McKillip Veterinary College, Chicago, Ill.

ANTISEPTIC WOUND TREATMENT (CONTINUED FROM PAGE 814).

*Occlusive Dressings of the Trunk.**

The experienced surgeon need not be reminded of the difficulties in this connection. It matters not how ingeniously we apply fabric bandages to the body of our patients they (the bandages) will not remain undisturbed long enough nor well enough to perform their mission, and besides the enormous amount of material required to bandage the hip, the stifle, the thorax, etc.,

* "Trunk" refers to all parts of the body except the lower part of the extremities.

is too great to warrant their use in wounds of these parts even if they could be properly adjusted and retained.

The substances recommended to the readers of the department of surgery, for the purpose of protecting trunk wounds, are :—

1. Tarry substances :
 - (a) Pine charcoal tar.
 - (b) Canada balsam.
 - (c) Rosin and oil mixtures.
2. Ether mixtures :
 - (a) Collodion.
 - (b) Flexible collodion.
 - (c) Iodoform ether 5%.
 - (d) Saturated solution of rosin in ether.
2. Drying powders :
 - (a) Iodoform sugar.
 - (b) Iodoform starch.
 - (c) Boric acid.
 - (d) Europhen.
 - (e) Protargol.
4. Miscellaneous substances :
 - (a) Creolin.
 - (b) Kerosene.
 - (c) Mercuric chlorid 1%.
 - (d) Chlorozone.
5. Cotton wool and oakum.

Tarry Substances.—The preparations above enumerated are frequently useful in protecting sutured wounds of the body, but have the disadvantage of becoming too liquid at the heat of the body and thus impair their usefulness. On a small wound pine tar, or, what is still better, Canada balsam, smeared over the surface and then matted with cotton wool will occasionally give some satisfaction. A mixture of rosin, seven parts, and castor oil, one part, mixed by the aid of heat, will firmly adhere to the skin but like the tars will not promptly become hard at the heat of the body, and if made harder by the addition of more rosin it would have to be applied hot, hot enough to burn the tissues. A substance that is liquid enough to smear over a wound, at a temperature of about 110° Fahr., and that would become hardened yet flexible at the temperature of the body, cannot readily be found.

Ether Mixtures.—These mixtures on account of being easily applied as well as for their perfect occlusive properties

are indeed valuable preparations, but their indications are restricted to a single class of wounds, *i. e.*, sutured wounds. They are applied by painting or spraying until a thick coating is formed. Iodoform ether and rosin ether are the most suitable for veterinary purposes. The former, although less occlusive than the latter, has the advantage of being readily removed when redressing or further treatment becomes necessary.

Drying Powders.—Many wounds if liberally sprinkled with dry powders while still wet will heal under the artificial scab thus formed, especially if the sprinkling is repeated often, but the method is by no means satisfactory. Protargol and iodoform sugar are probably the best.

Miscellaneous Substances.—In certain classes of wounds, especially those that will not admit of suturing or closing in any other manner, as, for example, large lacerations of the thigh, it is necessary to protect them with chemical substances that are actually cauterant. A one per cent. solution of mercuric chlorid, pure creolin, kerosene oil, probably all act in the same manner by slightly cauterizing the tissues and thus forming an even occlusive cover. Such treatment will of course slightly retard regeneration, but is the best method of preventing serious terminations from open wounds.

Cotton and Oakum.—These wools are useful in punctured wounds to protect against intruding organisms as well as to absorb wound secretions. They are applied soaked in antiseptic solutions and held in place either with sutures or by packing them firmly into the orifice.

It is now seen how complex, difficult and unsatisfactory is the task of properly occluding the wounds that cannot be clothed with fabrics, but to take advantage of all that can be done in this direction let us classify this large category of wounds and discuss the possibilities in each class:—

1. Sutured wounds that require no drainage.
2. Sutured wounds that require drainage.
3. Punctured wounds, including fistulous tracts, having good drainage.
4. Punctured wounds, including fistulous tracts, having no satisfactory drainage.
5. Large or small lacerations that cannot be sutured and must be treated as open wounds.

1. *Sutured Wounds that Require No Drainage.*—This class of wounds are very common, and unless located where there is much motion they should heal by immediate union. The

treatment properly executed to the point where the occlusive dressing is to be applied, the next step is to dry the wound and its environments with clean cotton dipped in boric acid powder. As soon as all the hæmorrhage and moisture is perfectly disposed of, the stitches and a liberal surface around them are painted or sprayed with a saturated solution of rosin in ether. The ether will rapidly evaporate and leave a thin coat of rosin firmly adhering to the skin. The heat of the body will keep the rosin flexible enough to prevent its breaking up or cracking as might be expected. Such a coating can be made as thick as desired by adding layer upon layer as fast as the ether evaporates. The process requires some patience, but when applied the dressing is the most perfect imaginable and by far supercedes all others. A wound so clothed is safe against external influences and will therefore heal accordingly. The only barrier against universal success is the movements of the patient. No wound can heal with minimum inflammation unless the part is quiet, so here we are at a disadvantage varying according to the location of the wound and the complacency of the animal.

The other adhesive substances that may be utilized in the same manner, such as collodion, Canada balsam and tar, are in no way equal in value to the rosin and ether mixture.

2. *Sutured Wounds Requiring Drainage*.—The surgeon must always estimate the amount of secretion that will flow from a wound in order to provide the proper form of dressing. The mixture above mentioned will perfectly protect a sutured wound, but if there is much secretion and no drainage provision is made the coating will be pushed off by the outward pressure of the secretion, and even the suturing may be completely broken open. So therefore in this class of wound in addition to the above technique a liberal opening must be made to allow the secretions to flow downward. The opening is wadded with antiseptic cotton wool and then sprayed with iodoform ether to prevent infection through that channel. Renewing the cotton once a day without disturbing the covered stitches is usually all the treatment such a wound will require. Antiseptic irrigation through the opening is not essential (and might even be harmful) except when there is evidence or suspicion of sepsis. When irrigation actually becomes necessary it must be performed gently, so as not to disturb the sutures.

3. *Well Drained Punctures and Fistulæ*.—It is only seldom that the veterinarian meets with this class and when they are met with the occlusive dressing is simple. Wadding the open-

ing with antiseptic cotton or oakum and holding it in place with a stitch or two, or by packing it firmly into the orifice, and then spraying the whole area with iodoform ether constitutes the best form of occlusion. Such dressings might well be left undisturbed for forty-eight hours after the first dressing, but subsequently daily dressing is demanded.

4. *Poorly Drained Punctures and Fistulæ*.—The greater number of deep lesions belong to this class, for it is indeed seldom that a punctured wound can be provided with the best drainage, and as for chronic fistulæ it is usually poor drainage that perpetuates their existence. To permit such wounds to secrete pus indefinitely and treat them by mere irrigation with antiseptic solution without attempting to sterilize them as is the usual course pursued in fistulæ of the withers and poll-evil, savors of poor surgery. A successful method of cutting short their existence consists (1) of perfectly sterilizing every recess, (2) drying every recess with antiseptic cotton, (3) spraying every recess with iodoform ether and (4) packing every recess including the whole cavity with powdered boric acid. (The latter drug is selected on account of its small cost.) A wound thus treated is safe against intruding organisms forty-eight hours or even longer, when the whole process excluding the first step should be repeated, and then again every two or three days until the healing process is complete. It might be argued that such treatment is rather expensive in veterinary patients, but really it is not when one considers that the healing period is considerably shortened.

On the poll, withers, acnestis and croup, the occlusion can be further perfected with fabric covering held in place with bands encircling the body, but these must always be kept clean, and the parts beneath the wound must never be permitted to accumulate the desiccated secretions.

5. *Lacerated Wounds that Cannot be Sutured, i. e., Open Wound Treatment*.—These wounds, which are very numerous in veterinary patients, must be dealt with according to their extent. Small ones, or mere excoriations, can be satisfactorily protected by dusting them repeatedly with iodoform sugar until an artificial scab has been formed. The larger ones probably constitute the most serious of all wounds. Burnett's Disinfecting Fluid, 2 per cent., Lugal's Solution, Mercuric Chlorid, 1 per cent., Chlorozone (Gray) and Tincture Iodine, 25 per cent., are all useful drugs for protecting such wounds, but the first named is doubtless the most effectual. They are used for

the purpose of cauterizing the tissue and thus form a clothing until nature itself puts up its own wall against infection. After a few days weaker solutions may be used. Spraying such wounds with kerosene oil, oil of turpentine, or pure creolin is also an effectual method of protecting them. Kerosene must not be belittled in this connection, for if sprayed carefully into a wound it will form just the very coating the surgeon desires and will then not blister the parts beneath.

The Routine of Wound Treatment.

1. Its examination.
2. Removal of all foreign matter and tissues that will become necrotic, or are already dead.
3. Its sterilization.
4. Arrest of all hæmorrhage.
5. Suturing and draining.
6. Protecting against infection during regeneration.

1. *Examination of a Wound.*—Whether surgical or accidental a wound must be carefully examined before it can be intelligently treated. The importance of drainage, the prerequisites of occlusive dressings and the dangers of septic diseases already enumerated should be a warning to the thoughtless and careless surgeon. The examination should determine the subsequent steps of the treatment. It is advisable first to make a careful inspection and if satisfied there are no hidden recesses, foreign matter or injured textures requiring special attention, no farther manual examination should be attempted, for in spite of our cleanliness the fingers are dangerous infection carriers; but when the eyes cannot inspect every recess palpation should not be omitted. Palpate with metallic probes, and then the fingers, if still in doubt, but never with the fingers until other methods have been exhausted.

As already stated the examination enables us to outline intelligent treatment. We determine whether or not there are foreign bodies to be removed, whether this or that shred has sufficient blood supply to warrant its preservation and retention in the wound, we note every recess that will require sterilizing, we observe the source of the hæmorrhage and decide upon methods to control it, we decide upon what form of suturing is indicated and devise means for drainage, and finally we determine what form of protection will be most effectual. So therefore we see that the examination of a wound like the diagnosis of internal lesions is essential in order to apply rational therapy.

(To be continued.)

SURGICAL ITEMS.

The veterinarian who arrives at the right diagnosis by means of his professional knowledge will have success with his therapy where the incompetent fails, and he will never undertake to cure hopeless conditions.

A veterinarian should possess a healthy, well-trained mind, and to a certain degree a strong body, well-trained senses, be a master of knowledge and skill, and have a soul free from self-conceit and prejudice. The one who shrinks to take his coat off when necessary or who is afraid to make himself useful because he will have to wash his hands afterwards, or who tries to practice surgery with long finger nails and gold rings on his fingers, will never satisfy himself nor anyone else.

The attainment (Geschick) that enables one to execute the tender, caressing examinations on a spoiled pet dog, cat or bird of a fashionable lady; to succeed over a vicious horse or an uncouth bull; to behave properly in a low, dirty pig pen or chicken coop; to examine in the presence of an overbearing, self-conceited, all-knowing horse-owner, trainer or farmer, in the simplest, safest and usual manner, and still not only preserve but elevate his personal and professional reputation, is no more an inborn principle than the "practical eye," but is acquired only by practice.—*Translated for the Department of Surgery from Hoffmann's Veterinary Surgery, by Wm. Schumacher, Vet. Student.*

The operations which the veterinarian should test and report for the purpose of determining their true worth are: Cunean tenotomy, for spavin lameness, peroneal tenotomy for string-halt, arytenoideraphy, trephining the cranium for gid in sheep, oöphorectomy for tails witching, neurectomy of the superior branch of the trigemini for twitching of the head, myotomy for tick, neurectomy of the cervical sympathetic chains for epilepsy, removal of the external alveolar plate for extracting molar teeth (Williams), dentistry for side-reining in driving horses, adjustment of artificial rings in tracheal stenosis. Wanted also, methods of curing alveolar nasal fistulæ; methods of preventing tracheal stenosis after tracheotomy; methods of curing string-halt, weaving, cribbing, salivary (Steno) fistulæ, forging from conformation, periodic ophthalmia; methods of applying strictly occlusive dressing to wounds where fabric bandages cannot be adjusted and retained; conservative indications and contraindications for the various neurectomy operations; satisfactory methods of castrating adult sheep and goats; and

methods of preventing curling after trimming the ears of dogs, etc., *ad infinitum*.—(L. A. M.)

The number of chemical antiseptics used in wound treatment should not be numerous. Better to learn the true worth and the proper use of one or two drugs than to use many different ones indiscriminately. The liberal use of soap, water and a scrubbing brush on the patient and hands, and intelligent sterilization of the instruments means more to the educated surgeon than all the antiseptic chemical substances in the pharmacopœia.—(L. A. M.)

EXTRACTS FROM EXCHANGES.

FRENCH REVIEW.

ENORMOUS INFLAMMATORY GROWTHS OF THE EXTREMITIES AFTER ACCIDENTAL WOUNDS [*By Prof. A. Labat*].—Some wounds, especially those of the extremities, when they are neglected and secondarily infected, have a marked tendency to granulate, and the granulating of these wounds may assume enormous proportions. Among many cases that he has observed, the author recalls three principal ones—one which was not treated for reasons of economy and two that recovered. In the first the wound formed two tumors, one in front and the other on the outside and back of the leg. It resulted from an application of bichromate of potassium ointment a few days after firing of the tendons of the left hind fetlock. In the second, a mare fired with points on the tendons of her swollen hind legs, which she rubbed and tore with her teeth. The granulating mass which followed on the right leg, occupied the posterior border of the leg, firmly attached to the tendon by a wide base extending from the hock to the fetlock and spreading on both lateral surfaces. After it was removed the whole mass weighed 6 kilog., 500 gr. (13 pounds). In the third case, a horse, being frightened by an automobile, was thrown, badly burned with the oil of the lighted lamp of the wagon which he was pulling and seriously wounded on the right leg. Some of the burns healed well but others did not, and with the wound of the leg resulted a fearful granulating wound on the front of the cannon, which had its base spreading over the anterior and lateral face of the metatarsus, from the hock down to the fetlock, which it overlapped. When removed the mass weighed 7 kilog. (14

pounds). The recovery was perfect. In these two last cases the treatment consisted in the classical amputation of the growth with the elastic ligature, and the use of antiseptic dressings and bandages, with systematic cold water sprinkling douches—varying in duration from 15 to 20 minutes—through which the wounds were thoroughly washed and cleaned and by which the healing of the wound was stimulated.—(*Revue Vet.*)

BICHLORIDE OF MERCURY IN THE TREATMENT OF DEEP PUNCTURED WOUND OF THE FOOT [*By N. J. Bowmay*].—The use of this powerful escharotic in the treatment of those kinds of wounds is not new. In 1723 the old French author, Solleysel, patronized it and in more modern epoch Bouley advocated its use. The author gives the description of three cases and of a number with which most satisfactory results and a very rapid recovery were obtained. In the first case, the injury existed in the inner lateral lacunæ of the frog. The animal was required to work in the day. In the second case, the wound was located on the external lacunæ of the frog and the animal was exceedingly lame and synovia escaped from the wound. With him the treatment lasted longer. The third case was a mare which had picked up a nail with her right hind foot. Treated first with sulphate of copper baths. She was very lame with a fistulous tract at the point of the frog, from which reddish purulent synovia was escaping. The recovery with her took place after two weeks. The treatment prescribed by Mr. B. consists in the following: Careful paring of the sole of the frog, principally round the seat of the injury, then introducing a grooved directory in the wound as far as possible, pack in the groove as much of pulverized bichloride as will go in. This can be repeated two or three times or even more. A simple dry dressing is put over the parts. The author concludes that this mode of treatment has been very satisfactory with him, and that out of 18 bad cases he has had to treat, all recovered with this process and without the severe surgical classical operation, which ought not to be resorted to until the bichloride has failed.—(*Rev. Vet.*)

METATARSO-PHALANGEAL JOINTS TORN OPEN [*By Mr. A. Barbier*].—The lesions that occurred in this case are extremely rare. A saddle horse had in galoping, already jumped over several obstacles, when after passing a space of moderate width, he suddenly fell, and notwithstanding violent efforts was unable to rise except on his fore quarters. The hind legs were completely disabled. Both fetlocks were liter-

ally ruptured—the lower part of the leg below the joint was hanging loose and attached to these gment above by the flexor tendon and the skin. The fetlock joints were open on their whole extent except on the posterior face. The lower extremity of the principal metatarsal bones was protruding; the skin, extensor tendons, lateral sesamoid ligaments, as well as the anterior and lateral metatarso-phalangeals. were torn. Alone the suspensory ligament and the flexor tendons close and hold together the joint behind. Profuse hæmorrhage had taken place by tearing of the arteries and collateral veins.—(*Rec. de Med. Vet.*)

SUCCESSFUL REDUCTION OF AN EVENTUATION IN A HORSE [*By M. E. Bollet*].—One more success in abdominal surgery is recorded by the author with the help of antisepsis. A gelding, after a fall on a plow, had a wound on the right side of the abdomen, some 10 centimetres from the linea alba, and 25 from the xyphoid appendix of the sternum; through this wound about 0.60 centimetres of the small intestine were protruding. The animal was thrown and placed in the dorsal position. The intestines were washed with boric solution (40 grammes for 1 litre of water), and afterwards with sublimate (1:1000). The wound had to be enlarged to allow of the reduction. The parts were sewed with interrupted sutures with a coat of iodoform thrown between and over the edges of the wound. The after treatment consisted in washing with cresyled water (30:1000), sublimate solution twice a day, and dusting with iodoform; and careful diet; after ten days the sutures had fallen off, the wound was rosy, without suppuration, and no hernia returned.—(*Rec. de Med. Vet.*)

ENGLISH REVIEW.

A CANINE ABDOMINAL CRYPTORCHID [*By Prof. Hobday*].—If it is not uncommon to meet with dogs and cats having only one descended testicle, cases are not so frequent where both organs are retained in the abdomen. An Irish terrier to be cured of its wandering propensities, was brought to the author to be castrated. He was laid on the operating table and placed under chloroform, but searching for the testicles, failed to discover or feel them, before or after the scrotum was opened. The wound was sutured and covered with antiseptic iodoform dressing. A few days after laparotomy was performed on the median line about half an inch in front of the opening of the prepuce.

The testicles were found lying close to the internal abdominal ring. They were withdrawn and removed after ligature of the spermatic artery. The dog recovered in a few days. He has become reconciled to his condition and behaves well. The testicles were about two-thirds the normal size.—(*Vet. Rec.*) [This circumstance is overshadowed by a litter of three St. Bernard dogs, owned by Mr. A. H. Van Brunt, Amersfort Place, Brooklyn, N. Y., who only have one descended testicle among the three dogs—five being retained within the abdominal cavity. This also reminds us of a case we saw in the practice of Dr. Geo. H. Berns, of Brooklyn. Having a dog presented for operation for the removal of a tumor located just in front of the prepuce, it was found upon exploration that it was a large testicle, and on incising the scrotum the enlarged vas deferens and cord were found to occupy the usual situation of the testicle. Amputation of the cord toward the inguinal ring enabled the operator to pull the testicle out of its cavity, the cord drawing easily through the channel in which it had been lying.—R. R. B.]

RUPTURE OF THE GASTROCNEMIUS TENDON WITHOUT INJURY TO THE SKIN [*By Prof. Hobday*].—A fox terrier had a peculiar fashion of walking with one hind leg, the tarsus coming in contact with the ground, very much like that of a rabbit. There was no wound; the leg was not painful; a space between the divided ends of the tendon was readily felt. Bandages and other various means having failed, it was decided to resort to an operation. Under the strictest antiseptic precautions an incision was made through the skin over the tendons; their ends were dissected, scraped, brought together with three silk-worm gut sutures. The skin being sewed with silk, the wound was covered with gauze and bandage and a metal splint applied to relieve the straining of the tendon. Except a little too free granulating of the wound, readily remedied, the animal made a rapid recovery.—(*Vet. Journ.*)

IMPERFORATE HYMEN [*By Mr. J. H. Wilson*].—"Similar cases recorded are exceedingly few, and none are to be found in English veterinary literature," is written by Fleming in his "Obstetrics," and on this account the case deserves attention. Although the time for calving had arrived, a cow was behind for a week, when she showed some indication that the moment was soon to arrive; but after a few days of waiting, no calf coming, the author was sent for. Evidently the cow was pregnant; on vaginal examination, this was found very small,

and some little force had to be used to enter it, to then discover immediately anterior to the meatus urinarius, a hymen which had a very small aperture at the top at the right side, and a slightly larger one at the bottom. Further on through the vagina, the dilated os was felt and the calf's nose protruding through the foetal membranes. A plug of oakum with extract of belladonna was introduced into the opening, but although it enlarged some the calf had to be delivered with force. This was done with difficulty, the vagina giving away at its upper commissure. The wound was well sewed with skewers and figure 8 sutures and healed rapidly. The cow recovered without any further trouble.—(*Vet. Record.*)

BELGIAN REVIEW.

REMOVAL OF THE ENTIRE UDDER OF A COW—RECOVERY [*By Prof. Hendrickx*].—The ablation of part of the mammary gland has been performed, and cases of recovery have been recorded; that presented by the author of the entire mass of the udder has not yet been described in our classical works nor been recorded in our literature. Probably as sequelæ of foot-and-mouth disease the mammary gland has undergone extensive degeneration and was transformed into a very large mass, lobulated, irregular on its surface and showing about ten little openings, through which pus escaped. The tissue proper of the gland was transformed into a solid mass with the consistency of fibrous tissue. The mammary lymphatic glands were hypertrophied. The condition of the cow was rather poor, her appetite delicate. Tuberculine being injected, and no reaction produced, the trouble was not of tuberculous nature. Attempts were made to obtain a resolution, but failing in this, it was decided to resort to operation, which the author describes as follows:—After careful antiseptic washing of the parts, an incision, melon rib shape, is made, passing on each side four fingers wide outside of the teats and including the skin and subcutaneous cellular tissue, but leaving the membrane proper of the gland intact. The dissection of the cellular tissue is made easily with the fingers, except where old fistulous tracts exist, when scissors have to be used. When the dissection is carried far enough, the hand is pushed between the skin and the membrane proper until the udder is entirely isolated on one side. This separation is carried as far up as possible towards the inguinal canal, when there an incision is made through the udder

proper envelope, which is enlarged by tearing with the fingers. The superior and external border of the glands are raised and a large vasculo-nervous cord, formed by the mammary vessels and nerve, is felt. In this case the artery is as large as a carotid. Two ligatures are applied on it, and the cord divided between them. The dissection of the internal face of the gland is carried out without hæmorrhage of any amount. This step is done easily with the fingers except in two places where the subcutaneous abdominal and the perineal veins are situated. Those were secured with ligatures. The dissection of the other half of the gland was done in the same manner. The wound left measured 50 centimetres in length and 25 in width. The mass removed weighed 29 pounds. Cicatrization by first intention could not be obtained nor was it attempted. The dressing consisted in phenicated dressings, absorbent and antiseptic pulverizations and giving about three times a day of solution of formaline at 5 %. Six weeks were necessary to obtain a complete cicatrization.—(*Annales de Belge.*)

ENORMOUS LIPOMA IN A HORSE [*By Prof. Hendrickx*]. —When only a colt this horse had a small tumor in the right flank; it kept growing and to-day, the horse being six years old, the tumor is enormous. Involving the right flank, it extends from the transverse processes of the lumbar vertebræ downwards to a level with the stifle joint and fold of the groin, and from backwards forwards from the external angle of the ilium to the hypochondriac region. It is bosselated on its surface, not painful to pressure, rather firm in consistency above, soft and almost fluctuating below. There is no œdema around. It measures 92 centimetres in length, 43 in width, and in its apparent thickness 45. It is not a hernial tumor; rectal examination shows this, but it also reveals the fact that the neoplasm protrudes on the inside of the abdomen. A diagnosis of benignant tumor, probably fibro-lipoma, is made, and operation is the only means of relief. This is attempted. The animal cast, the region disinfected, an elliptic incision is made, and the subcutaneous cellular tissue is easily divided with the fingers on the posterior part of the tumor. In front the scalpel is necessary to divide firm bands of condensed cellular tissue. The superior border of the tumor is exposed, and then it becomes evident that the tumor extends between the muscular coats, and on the deep surface is separated from the abdomen only by the fascia transversalis and the peritoneum. The removal of the tumor is materially impossible, and the

horse was killed. The operation was nevertheless completed, and a mass of fatty tissue was extracted, weighing 84 pounds. The fatty substance was arranged by superposed layers, isolated by the muscles of the region, with numerous fine fasciculi of fat running through the thickness of the various layers and establishing between those of the neoplasm an intimate continuity.—(*Annales de Belge.*)

PARALYSIS OF THE TAIL AND OF THE SPHINCTERS IN A MARE [By P. Rubray].—The symptomatic triology, *inertia of the tail, involuntary expulsion of the fæces* and *repeated micturation*, is expression of scleritis of the cauda equina, the terminal extremity of the spinal cord. But it may also be the result of fractures of the sacral vertebræ. This is proved by the following case. A thoroughbred mare is suffering with the three symptoms. She walks well, but now and then some of her steps are accompanied with expulsion of urine. Her tail is soiled with fæces and urine. The tail is powerless, and can be pulled in any direction without painful manifestation from the animal. Pricks with needles on the whole length of the tail give rise to no pain. The anal sphincter is relaxed, the anus gaping and open; there is no muscular contraction; the skin and mucous membrane of the anus are entirely feelingless. The vulva is enlarged also, and more or less open. The neck of the bladder is paralyzed. There is no apparent deformity of the croup, no mark of any traumatism. Rectal examination reveals no lesion of the nervous trunks of the sphincters of the tail. The animal was for a long time submitted to various forms of treatment, but without any benefit whatever, and she was destroyed. Although post-mortem was not as minute and as satisfactory as it might have been, a sufficient lesion to explain the series of symptoms was found, viz., a fracture of the sacrum, involving the second vertebræ, which had been, so to speak, crushed, and a portion of its spongy structure pushed into the vertebral canal, which is almost entirely filled by the bony substance. The annular portion between the second and third spinous processes had also been fractured. It is evident that there had been a complete pressure on the spinal cord and the nerves of the cauda equina.—(*Annales de Belge.*)

SALOPHEN, in two to five grain pills two or three times daily, is a remarkably effective agent for rheumatism in the dog, especially of the subacute variety.

PROPOSED IOWA VETERINARY PRACTICE ACT.

House File No. 179—By Koto. Public Health.

A BILL FOR AN ACT TO REGULATE THE PRACTICE OF VETERINARY MEDICINE, SURGERY AND DENTISTRY IN THE STATE OF IOWA.

Be it Enacted by the General Assembly of the State of Iowa :

Section 1. That it shall be unlawful for any person to practice veterinary medicine, surgery or dentistry in this state, who shall not have complied with the provisions of this act.

Sec. 2. Any person who has practiced the profession of veterinary medicine, surgery or dentistry as a livelihood in this state, for a period of five years immediately preceding the passage of this act, may be deemed eligible to registration as an existing practitioner, and receive a certificate of registration, upon presentation to the secretary of the Board of Veterinary Medical Examiners, which shall be hereinafter constituted, his sworn affidavit and letters of recommendation from ten reputable freeholders and stock owners in his locality, all such applications to be made on or before January 1, 1901.

Sec. 3. Any person who is a graduate of a legally chartered and authorized veterinary college or veterinary department of State university, at the time of the passage of this act, or who shall hold a diploma from such institutions prior to 1901, shall be entitled to registration as an existing practitioner, upon the presentation of his diploma, certified by affidavit.

Sec. 4. The governor of the state shall appoint a board of examiners, within sixty days after the passage of this act, said board to be known as the State Board of Veterinary Medical Examiners. This board shall consist of three qualified veterinarians, residents of the state, each of whom shall be a graduate of a legally chartered and authorized veterinary college or veterinary department of State university, and who shall be of good standing in the profession.

One of these members shall be appointed for one year ; one for two years ; and each succeeding appointment shall be for three years.

Each shall hold office until his successor is duly appointed and qualified.

No member of any veterinary college or veterinary department of State university, or any person connected therewith shall be eligible to appointment upon said board.

The governor shall fill any vacancy which shall occur on the board, and may remove any member of said board for continued neglect of duty, for incompetency, unprofessional, or dishonorable conduct.

Sec. 5. This board shall have power to make all needed regulations for its government and proper discharge of its duties in accordance with this act, and shall have power to administer oaths, and take testimony concerning all matters within its jurisdiction.

Sec. 6. The meetings of the examining board shall be held at least once a year, or at such times and places as it may elect. At any meeting of the board, a majority shall constitute a quorum to transact business, or to conduct examinations.

Sec. 7. Said board shall receive applications for registration, according to sections two and three of this act, and shall issue a certificate of qualification to all applicants who conform to the requirements for such registration, signed by the members of the board, provided that the certificate thus granted specifically and plainly states whether or not the one to whom it is granted is a graduate or non-graduate in veterinary medicine. Such certificate shall be conclusive as to the rights of the lawful holder of the same to practice veterinary medicine, surgery or dentistry in this state.

Sec. 8. The fee for registration shall be five dollars (\$5), payable in advance to the secretary of the board.

Sec. 9. From and after January 1, 1901, any person not heretofore authorized to practice veterinary medicine, surgery and dentistry in this state, and desiring to enter upon such practice, shall be a graduate of a legally chartered and recognized veterinary college or veterinary department of State university, and shall pass the examination required by said State Board of Veterinary Medical Examiners.

The fee for such examination shall be fifteen dollars (\$15), payable in advance to the secretary of the board. The applicant shall be at least twenty-one years of age and of good moral character. Any person conforming to these requirements shall receive a license to practice veterinary medicine, surgery or dentistry within this state, signed by members of the board, which license shall be recorded in the office of the recorder of the county in which said person resides, the recording fee to be paid by holder of certificate.

Sec. 10. The board shall keep a register of all registered practitioners in the state, setting forth such facts as the board

shall see fit. All fees accruing under this act shall be held by the treasurer of the board, who shall execute good and sufficient bond to said board to faithfully discharge his duties, and who shall pay out such funds, only, on vouchers certified by a majority of said board.

Sec. 11. Each member of said board shall be entitled to receive five dollars (\$5) per diem, and necessary traveling and incidental expenses, incurred while actually engaged in the discharge of his official duties, provided such compensation and expenses does not exceed said income of fees accruing under this act.

Sec. 12. Any person violating any of the provisions of this act, shall be guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than twenty-five dollars nor more than one hundred dollars, or by imprisonment in the county jail for a period of not more than ninety days for each and every such offense.

All fines received under this act shall be paid into the common school fund of the county in which such conviction takes place.

It shall be the duty of the county attorney of the county in which violation occurs to conduct all proceedings against violators of this act.

Sec. 13. Nothing in this act shall be construed to apply to commissioned veterinarians in the United States army or to persons who dehorn cattle, or castrate domestic animals, or to persons who gratuitously treat diseased animals.

Sec. 14. Any person who shall, without having been authorized so to do legally append any veterinary title to his name or shall assume or advertise any veterinary title in such manner as to convey the impression that he is a lawful practitioner of veterinary medicine, or any of its branches, shall be guilty of a misdemeanor, and punished according to the provisions of section 12 of this act.

Sec. 15. And in case the examination of said person shall prove defective and unsatisfactory and his name be not registered, he shall be permitted to present himself for re-examination, within any period not exceeding twelve months, next thereafter, and no charges shall be made for re-examination.

Sec. 16. After registration, an annual fee of one dollar for a renewal certificate shall be paid on or before the first day of January of each year.

Any holder of said renewal certificate will be deemed eligi-

ble to practice at any place in this state. Any person practicing veterinary medicine, surgery or dentistry, without this renewal certificate, will be guilty of a misdemeanor.

Sec. 17. This act, being deemed of immediate importance, shall take effect and be in force from and after its publication in the *Iowa State Register* and *Des Moines Leader*, newspapers published in the state of Iowa, and city of Des Moines.

CORRESPONDENCE.

WORKING FOR THE ARMY BILL.

EXETER, N. H., February 21, 1900.

Editors American Veterinary Review:

DEAR SIRS:—Thinking that it would be pleasing to the readers of the REVIEW to know what is being done for the promotion of the Army bill, I wish to say that on the 17th inst. I mailed to our two Senators, and our Congressman, letters and petitions pointing out to them the salient features of such a bill. My petition was signed by the most prominent citizens of my territory, composed of merchants and professional men, legal, medical and clerical, as well as the faculty of the Phillips Exeter Academy, selecting only men who could appreciate the importance of such a measure. My letters to the representatives were substantially of this nature, and I wish to say that it was remarkable that they were unanimous in their belief that such a bill should surely pass; also that the majority were surprised that such a corps was not in existence. I obtained over 100 signatures in two days, and could have found 1000, easily. I think if our brethren of other States would get down to energetic effort, they could by selecting the proper signatures to present to their representatives, realize success. One of our representatives (Senator Gallinger) acknowledged the petition and letter very handsomely, promising to give it proper attention. The *Congressional Record* of Monday, the 19th inst., published the presentation of my letter and petition. I had only asked for the support of this gentleman, but he has performed his duty to our profession handsomely. If you look up the *Record* of the above named date, you will find something interesting to your readers. I hasten to write you this information, hoping it may reach the pages of your next issue, and may stimulate others to take the step to awaken their representatives to the importance of this bill.

Hoping that you may reach the entire profession, and be successful in getting recognition from our government, I remain as ever,

C. E. BURCHSTED, M. D. V.

P. S. I wish to say that the local papers have given us their heartiest support.

THE DEFINITION OF "HOOSIER."

OMAHA, Feb. 11, 1900.

Editors American Veterinary Review:

DEAR SIR:—An inquiry for the origin of the word "Hoosier" is made by J. P. Dunn, of Indianapolis, on page 821 of February REVIEW.

The definition given in the *Encyclopædic Dictionary* is: "*Hoosier*—a corruption of 'husher,' from their primary capacity to still their opponents; or of 'who's yere?' a gruff inquiry when one knocks at a door (Bartlett). A term applied to the citizens of the State of Indiana."

I have lived in various parts of England, but never heard the term applied to animals affected with *hoose*. Provincialisms are, however, quite common, each county rich in their odd sayings and terms. I think the above meaning is very plausible, and evidently correct. Respectfully,

G. R. YOUNG, D. V. S.

PROSECUTING ILLEGAL PRACTITIONERS IN NEW YORK STATE.

BUFFALO, N. Y., Feb. 22, 1900.

Dr. Roscoe R. Bell, President N. Y. S. V. M. S., New York City:

DEAR SIR:—I succeeded last Saturday in convicting Byron Smith, of Niagara County, this State, of practicing veterinary medicine in violation of Chapter 860 of the Laws of 1895. The case came up before Justice Richardson, at Lockport, and a big bluff was put up, denying all allegations of the complaint, the District Attorney acting as counsel for Mr. Smith; but before I left the city, we talked the matter over, and I convinced Mr. Smith that I had evidence sufficient against him, and he went in before the magistrate, withdrew his denials, and admitted that the allegations in the complaint were true and consented that judgment be entered against him for the penalties prescribed in that law.

There are others in this part of the State which we are looking after and shall very likely secure their convictions soon.

Sincerely yours,

JEROME SQUIRES.

DIFFERENT MODES OF FIRING.

BRASHER FALLS, N. Y., Feb. 5, 1900.

Editors American Veterinary Review:

DEAR SIRs:—I would like to say a few words as to the different methods of firing, regarding the use of the feather edge and budding iron. In severe cases of ring-bone or spavin I much prefer the latter, and in spavins puncture the outside as well as inside of the tarsus. The "budding iron" I use has about twenty round points about $\frac{5}{16}$ inch long and $\frac{5}{8}$ inch apart, which are attached to a square plate. This I find leaves a very little blemish as compared to the "feather edge." After firing I use a blister of cantharides and hydrargyrum iodide rubrum. For weak tendons, wind galls and curbs I prefer the "feather edge." I am, Very truly yours,

A. W. BAKER, V. S.

SOCIETY MEETINGS.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

The twenty-second regular meeting was held in the parlors of the Hotel Donovan, Saint Joseph, Mo., on the evening of December 11, 1899, at 7.30 P. M., with the following officers and members present: Drs. Forbes (President), Stewart, Moore, Washburn, Sloan, Netherton, Wright, Patterson and Ross Cooper, with Drs. Blackwell, Wilson, Steele, Goode, of Saint Joseph, and A. T. Peters, of Lincoln, Neb., as visitors.

A varied and very interesting surgical clinic was held on the afternoon of the same day from 2 to 5 P. M. in the hospital of Dr. E. J. Netherton, Saint Joseph, under the direction of Drs. Netherton and Patterson.

Routine business having been disposed of, the President (Dr. Forbes) called upon Dr. E. J. Netherton, who read the following paper, entitled:

"CITY INSPECTION OF FOOD PRODUCTS."

The production and distribution of milk and meat products engage the attention of no small part of our population. The use of milk is general and not limited to any class or locality. It is regarded as a necessity by almost every family, and for this reason information regarding it is important. By milk is meant the properly handled product of healthy, well fed cows.

It is a little heavier than water. Its specific gravity varies from 1029 to 1033. The first milk given after birth is called colostrum. It contains a large proportion of albuminoids and is not fit for food except for the new born, and any milk having a large amount of sediment is suspicious. Particles of dirt are a sign that germs are abundant. Thus dirty milk may be dangerous as well as disgusting. The dirt in milk consists mostly of particles of dead skin and manure which fall into the pail from the body of the cow during milking, but dirt and dust in the vessels used for handling milk and unclean attendants are also common sources of dirty sediment in milk. Milk from unhealthy or unthrifty cows or that which has been handled by sick persons is dangerous, as it contains infectious germs, or foreign substances which may affect the health of the consumer.

The germ of diphtheria, typhoid and scarlet fever and tuberculosis (consumption) have been found in milk and thus transmitted to man and spread from family to family. Feverish cows, those having just given birth to young, and sometimes cows that have been milked a long time, produce milk which should not be used. Any milk having unnatural appearance or odor should be discarded. The most common forms of fraud practiced with milk are the removal of part of the cream by the aid of a milk separator and the addition of water.

Most communities have laws against adulteration, but they are not as rigidly enforced as they should be. The law in this State requires at least three per cent. of butter fat, but the custom among dairymen is to have their milk come only within the bounds of the law and no more. If a dairyman is dishonest enough to water his milk he will not be careful about the purity of the water added. Contagious diseases have been traced directly to contaminated water added to milk for the purpose of adulteration, or which has been used to rinse the cans.

The most common substances contain salicylic acid, boric acid, borax or formaldehyde. These are not regarded as poisons, but when taken regularly in small doses in milk they have an injurious effect upon the system.

But here is not where the danger lies. The chief object of inspection is to determine whether the meat and milk products are from animals that are free from diseases, especially tuberculosis. It has been known for some years that the milk of cows

suffering from tuberculosis may contain tubercle bacilli. The bacilli consumed in the milk by infants and children may lead to tuberculosis (consumption) in one or more of its numerous forms. It has been the object of investigators, both in the medical and veterinary professions, to find out exactly under what condition the milk from tuberculous cows may be dangerous.

Both classes maintain that the tubercle bacilli may pass into the milk when a cow is affected with tuberculosis to a marked degree, or even when the udder remains free from disease. Tuberculosis deposits in the udder, when they have reached a certain size, can be detected in life. For this reason the inspector should condemn the milk of all cattle suffering from tuberculosis, because even if the udder is not visibly diseased tuberculosis may nevertheless be present. The great importance of a regular periodical inspection of dairy cattle is thus made manifest. If only such animals in which the udder is found diseased would be condemned and the milk rejected, a large amount of the injury done by tubercle bacilli in milk could thereby be avoided.

Those tuberculous animals in which the disease of the udder escapes attention because of its restricted character would still distribute tubercle bacilli. But inspection done by a competent veterinarian would largely relieve the apprehensions of the public, which have been aroused by the extended discussion which this dread plague of tuberculosis has undergone in all journals. But the public should be made aware of the great danger in the use of milk from cows which are beginning to emaciate or whose udders are diseased. If we bear in mind the wide distribution of infectious diseases in cattle, especially dairy herds, it would lead us to believe that dairy herds collected in different localities were always found to be more or less diseased or infected. It is essential, therefore, to guard the milk consuming public against disease, to look with suspicion upon all dairy cattle, and more especially those that have not been inspected.

The greater dependence of the cities on the food furnished in the shape of meat and milk has with unerring certainty multiplied the number of tubercular cases. If the mothers better appreciated the dangers to which their little ones are exposed, numerous diseases from the use of meat and milk from unknown sources, especially in the summer time, when it may be teeming with bacterial growth, more of them would exercise

their influence in securing the proper inspection of these products. It behooves the city officials and the veterinarians as sanitarians to exercise their most energetic influence in awakening the minds of the people to the dangers thus lurking in the meat and milk supply and from the dangerous power the milk supply of our city exercises in acting as the vehicle of transportation of such diseases as tuberculosis, diphtheria, typhoid and scarlet fever and many other diseases.

Under the present existing circumstances we have slaughtering establishments owned by butchers who buy their stock for slaughter where they choose and they are beyond the reach of the federal authorities. Why? Because government inspection only applies to abattoirs having an interstate trade. These parties say they are only supplying the local and State trade and are therefore at perfect liberty to buy and slaughter any kind of stock they choose, be it healthy, or crippled or diseased. Here State and municipal laws come into conflict, if any law exists. These places have been visited by the writer and the unspeakable filth and lack of all cleanliness points them out as sources of disease and a standing menace to the consumer of meats slaughtered there, without consideration of class of animals killed. It is true there are exceptions to the rule, but they are very few.

If any adequate reason ever existed for federal meat inspection the same reasons are of equal force as applying to State and municipal inspection. For this inspection to be complete a man who is a graduate veterinarian should have charge of inspection of animals killed or offered for slaughter, and the stamp or official seal of soundness should be affixed to his products so it will be free from all suspicion of disease and stand equally as good before the public as meats from abattoirs licensed by the United States authorities. It is said no law is stronger than the public opinion behind it. I feel confident public opinion in this city will be forceful enough to sustain all municipal legislation on this subject.

Next the veterinarian appointed to enforce the ordinance should be a member of the board of health, for it certainly is a matter concerning the health of many people. He thus has representative men to enforce his decisions. Again, it is not a question of politics, but of efficiency, and should be free from politics. He should receive a salary commensurate with his services and should devote his time to the work along with other duties that will properly come within his province. The

municipal control of meat and milk supply in cities is one of the necessities of the times if we wish to keep disease from doing its deadly work.

That milk is a vehicle by which disease is transmitted is a well established fact in the minds of all educated men. In how many ways an animal may be the source of infection it would require too long a time to describe. But tuberculosis and other diseases of the udder and teats suggest abundant causes of infection. The determination of these causes can only be described by the veterinarian. That diseased and tubercular cows are in our herds is true if the observations and experience of other cities are true. The municipality, the council, or board of health have the undoubted right to take the whole subject of meat and milk inspection under city control, and it is for them to enact ordinances protecting the public from diseased meat and impure milk.

The salary of an educated and competent veterinarian would approximately be \$1200. Place the meat and dairy inspection under his control as a city official and license all butchers and dairymen, but hold them to a strict conformity to the ordinance or revoke their license, and publish the facts. To neglect wise and thorough control of the meat and milk supply of any city, is to invite the dissemination of diseases of the most virulent and fatal character. The municipal authority of this city should stand for the health of this community, for the health of the babies and invalids who depend upon this milk for food. Are the people willing to take the risks? I am of the opinion that the lack of such inspection and control is due not to willfulness, but to indifference and ignorance of the true conditions. Let the people agitate until their will is obeyed.

In the absence of Dr. Thackaberry, the discussion which followed the reading of the paper was led by Dr. S. Stewart, of Kansas City, as follows :

Dr. Stewart : I had not expected to enter very much into the discussion of this subject and have not noted it as closely as I should have done. I wish to say, however, that I was quite interested in the paper and think such papers should be placed before the public as frequently as possible, so that it may be fully and correctly informed, and be guided accordingly. Most of our veterinary papers that are prepared for veterinary societies are not very well adapted for presentation in the public press. They are much inclined to be too technical, too

scientific. This paper in my judgment would serve a most excellent purpose if published in the daily press of this city, and I do not doubt but what it would receive considerable publicity by quotation. The statements contained therein are unquestionably in line with many such scientific papers that have been presented heretofore, and I would not feel like controverting the points that have been made. I trust that the society will see to it that the paper receives that publication which will put it into the hands of those who need to be informed upon such topics.

There is a theory extant that the veterinarian should not so frame his thoughts that they serve as alarmist articles, that he should be cautious, that it is unfair and unjust to the public to spread abroad alarmist articles, that they disquiet the comfort of the home, that mothers and fathers become anxious and do not appreciate the substance upon which they must live. But some alarming statements must be placed before them or they will not awake to their danger. I know of no way of awakening their latent understanding without it is done somewhat rudely; so many things press for attention that it is only those things that arouse curiosity, or that appeal to their fear for their personal safety, personal vanity, or some other powerful sentiment, which are likely to awaken any interest whatever, and such articles as these will serve a good purpose, even though there may be some here and there who may be seriously disquieted by the discovery that such things are possible. The public press teems with articles upon impurities in other things besides meat and milk and the public is becoming awakened to the necessity for inspection of all kinds of food.

I note that the paper fixes the salary at \$1600. Now, that is a fair salary and certainly would attract capable men to take up the work. It is not usually the case, however, that municipal bodies fix so large a salary as that to begin with, but even though the salary provided by any ordinance that might be passed should seemingly be meagre I believe it would justify a local veterinarian who has other means of livelihood in accepting such an office, and if by his ability he can demonstrate his usefulness there is little doubt but that within a reasonably short time the municipality would raise the salary to an adequate sum. Some men say, if they cannot get a substantial salary they will not accept sanitary jobbery of that kind, thinking it is demeaning to their special qualifications, but experience should teach such that it is not customary in any city for a

newly created office along sanitary lines to be very well paid, especially in countries where it is just being inaugurated. They should be content with a meagre salary, and should also be content, if appointed, with accomplishing apparently small results, gradually extending their influence and the value of their office. The public is likely to be revolted with sudden onsets of officialism in any direction, and soon rebel and dispose of it entirely. There are therefore two sides to the question, and the conservative one, it seems to me, should prevail. I hope the paper will receive the publication to which I have alluded.

Dr. Wilson : I would like to ask the author of this paper which he thinks is the more likely to produce the typhoid fever, diphtheria, etc., to which he referred, tuberculosis, or the uncleanness of which he spoke.

Dr. Netherton : Well, I think scarlet fever and diphtheria are more frequently contracted as a result of the impurities in the water and its adulteration than from the tubercular trouble.

Dr. Peters : I was interested in Dr. Netherton's paper, and I hold the same views that Dr. Stewart does. At the Omaha, Neb., meeting Dr. Ramacciotti gave a very excellent talk on this subject. He gave the history of milk inspection in that state, and throughout his talk you could see how he nursed the municipality to the inspection. He did not achieve his object by the method of the alarmist, but with sound, convincing argument he accomplished a great many things. He admitted that the system was by no means perfect, but stated that he was in hopes of having passed a new ordinance which he had framed and which he believed would improve the service. Now I am a firm believer in that way of doing things. The veterinarians of Lincoln have long felt that they should do something. They looked to the experiment station to take the initiatory step. The men engaged in the business there had frequent consultations with the experiment station authorities, and we also had consultations with the city authorities, and we found that the time was not ripe, but this small corps of veterinarians there kept up their little fight on the quiet, and lately we have received invitations to talk to the City Improvement Society, which is composed of ladies, and before that body I had the pleasure of talking in a popular way regarding the cleanliness of the city, proper sanitary precautions, and incidentally touched upon the question of the inspection of milk. I told them of the number of cases the veterinarians had found and how powerless they were, and it seems that this organiza-

tion is going to do far more than we ever dreamed of. We were always accused by the politicians of looking for a job, especially during the hard times, that horses were cheap and we had to look for other fields of labor. I just throw out this suggestion that if you have such a society here, try and secure an invitation to give them a popular talk, and you will not be sorry.

Apropos of Mr. Netherton's reply to Bro. Wilson, I wish to say that I do not believe the typhoid, diphtheria or tubercular germs are conveyed to the milk so much by adulteration as by the use of improperly cleaned vessels and the existence of unsanitary conditions around the dairy.

Dr. Netherton: I desire to say further that I have been treating cattle in several of these dairies, and in one case which I recall I was called to see a cow which had calved, I think, the week before. She still had a retention of the placenta, and they were saving the milk of that cow. There was such an odor from the animal that it was difficult to stay in the stall where she was. They had a well within 10 feet of the stable. They have 200 cows in the stable and it was at this well that they washed their milk vessels. I saw them do that, and in all probability the water which was used to adulterate the milk was obtained from that same cistern. Last year was a very hard year on the dairymen in this city as well as others. The cows were not calving and the milk supply was short, and the fact of adulteration was not denied, but if they used that water to adulterate their milk certainly everything was favorable to the propagation of the germs of disease and their dissemination among the consumers of the milk.

Dr. Moore: I do not know that I can add anything to what has been said in regard to this paper. I certainly appreciate it very much, and agree with the doctor fully in his statements. I think that oftentimes milk becomes contaminated even though fairly good sanitary conditions prevail in the dairy and care is bestowed upon the cans. The cooling boxes are often sufficiently contaminated, and scarlet and typhoid fever may exist in the family, and the milk may become contaminated in that way. I do not think we could very well say anything to unnecessarily alarm the public. Of course it might cause some people to say we are alarmists, but to me the matter is so important and covers so much territory, is so essential to the welfare of the people, that it would be hard to say anything that would alarm the people beyond what they should be alarmed.

But whether it would not be policy to go a little slow might be a question.

So far as the necessity for publishing or getting before the people this class of scientific literature is concerned, I think that cannot be too greatly emphasized. I have felt for a long time that our efforts as veterinarians were confined too much to preparing papers for the veterinarian, for the scientific, educated men, and not enough for the masses of the common people, and it seems to me that it would be a good thing if at every meeting we had at least one paper devoted to matters of vital interest to the masses of the people prepared in such a way that it would be acceptable to the press, especially the local press in the sections of country where the meetings are held. If we could reach the people through that source it would benefit both the people generally and the veterinary profession.

Dr. Sloan: I had hoped that the writer of this paper would give us a practical solution of this question of milk inspection. I have seen a little of that tried in different places, and it is just as well that we note the mistakes of others in order not to fall into the same ruts ourselves. For instance, in San Francisco they have a milk inspector appointed; he goes about the city collecting samples of milk from the dairymen, and from his report the city undertook to enforce the testing of the milk from the different dairies. As a consequence the city has a number of lawsuits on its hands, the dairymen having combined to oppose the testing ordinance, and at the last accounts I heard the matter was still in the courts. In Chicago the veterinary society proposed that the city take up the matter and enforce the testing of all the dairy cows in the city every three months. The mistake they made there was in giving the public the idea that it was necessary to test the cows every three months. If they had fixed the time at six months or a year they might possibly have accomplished their object. The frequency of the inspection fostered the opposition of the people to the scheme, however, and it was not popular for that reason. However, the matter was well stirred up, and in that way some good no doubt was accomplished, as it is necessary, it seems to me, to agitate these matters in order to educate the people to a sense of what is due them.

I think it would be a good thing to bring the matter before the physicians of the city, and an expression from them would probably have more weight than a recommendation from associations of this kind. If an effort is made to secure municipal

inspection in the city of St. Joseph, I would suggest that the city board of health be approached in the matter and try and secure their co-operation.

Dr. Netherton: During this last spring I circulated a petition among the physicians and each of them signed it. It was addressed to the mayor and the city board of health, asking that an inspector be appointed, a veterinary graduate. I think I had something like 75 signatures of physicians and that of quite as many laymen. It was referred to the board of health and was pigeon-holed. They did not seem to take any interest in it. They had a food inspector in this city up to last year, a layman who never did anything, and the office was abolished. This fact was alleged as a reason for their failure to act upon the petition which I presented. However, I think that in the coming spring, if we have the co-operation of the physicians and the board of health, we will have inspection established again, and it would be much easier if we could get this on a fee system. I do not know of a precedent for such a system, but lack of funds for such a purpose was urged by even those who were favorable to the proposition. But, as I have already said, I think if the matter is agitated until the end of this fiscal year we can get some money appropriated and have the office re-established next spring.

Dr. Cooper: The only case I recall now regarding public sentiment relative to milk inspection occurred in Iowa the past summer. Almost every town in that particular section has from one to three creameries, and some one had made complaint about a man having tuberculous cows who was selling milk to one of the creameries. It was found upon investigation that the man had two or three cows affected with tuberculosis. He told the inspector that another man a short distance from there who was milking from 50 to 100 cows had a bad herd. This herd was examined and 30 cows were condemned. The water was furnished by a spring surrounded by hills, and around this was his pasture, and in rainy weather the water from the hills was mingled with the water of the spring. In the winter his stables were crowded very full, and are not very cleanly. Not long after the quarantine had been established a local clergyman wrote a letter to the state inspector asking him to lift the quarantine of the rich man's cows, but saying nothing of the other man! The owner of the cows was quite wealthy and the clergyman's influence would outweigh that of any half dozen physicians or veterinarians you could get together. Where

you have such interference as that it of course takes some little time to control public sentiment, or enlighten them as to the actual facts in the case.

Dr. Forbes : Before closing the discussion I would like to emphasize some of the remarks made by several of the participants in this discussion as to the necessity of getting before the public the need for a thorough and competent meat and milk inspection. I think also that the suggestion of some members as to going a little slow should be considered. We should be content with a very small thing at first and wait until the public has been educated to it before pushing the matter to any great extent. I think by so doing we will arrive at better results.

Dr. Wilson : On ante-mortem we frequently have cows where the udder is enlarged, and also have matter and little abscesses in the udder, and I would like to ask the writer of this paper how he would diagnose whether this diseased condition arose from tuberculosis or was simply an inflammatory product.

Dr. Netherton : I think that where you have an inflammation due to mammitis the nodules are not as small as in tuberculosis, but I believe it would have to go to post-mortem before it could be determined positively. I have a cow out here now in one of these dairies, a nice Holstein cow, and giving about six gallons of milk daily. On the right hind quarter a little abscess developed. It commenced a mammitis, I think, and I prescribed the regular treatment for mammitis, to which it seemed to yield partially. The enlargement abated to about the size of a hen's egg. Two weeks later I was called again and found it had become very hard. I put a knife in it and got quite a bit of pus. It seemed to heal up, and left a little nodule there about the size of a walnut. It ran along that way for four or five months and did not seem to bother her, when about two weeks ago it commenced enlarging and it got the size of a goose egg. I was again called and again applied the knife, and as before obtained a considerable quantity of pus. It is going down nicely and I think will soon be all right, but all this time he has been using the milk from this cow, supplying it to the city. I do not know whether it was a case of mammitis or tuberculosis.

Dr. Peters : I would call it a suspicious case of tuberculosis. All such cases should be tested with tuberculin.

Dr. Stewart : As the question has drifted into one of ante-

mortem and post-mortem determination, I might state that it is altogether probable that there are many cases of mammitis which result in what is popularly known as spoiled bag, which are not tubercular. The udder, one or several quarters of it, may be involved, but is usually involved as a whole, and upon palpation presents quite a uniform surface, which is quite dense, and in these cases there is no characteristic enlargement of the lymphatic glands above and behind the udder, while in cases of tubercular mammitis tubercular masses are developed in the substance of the udder, usually so pronounced that they can be readily determined by palpation; also there is involvement of the supermammary lymphatic glands. I do not know that it is common to find a tubercular udder in which the tubercular process has resulted in the formation of abscesses such as have been described. However, there are so many things with which I am not familiar which are facts, that I would not undertake to say the case described is not tubercular. Certain it is that it would be good policy to test a case of that kind with tuberculin, and in that manner pass upon the question.

Dr. Wilson: Down here we get many cases of that kind, almost every day, in fact, and we pass them along unless they show other symptoms along with the enlargement, where the udder has had little abscesses form from split bag, and upon post-mortem examination they show no sign or trace of tuberculosis in most cases.

Dr. Cooper: I had a case last summer at the packing house of Schwarzschild & Sulsberger, at Kansas City, the first I noticed. The udder showed quite a large abscess and tubercular indications all around it. I told the boys to be careful and save the guts and everything of that kind. When the animal was hung up it showed no great emaciation; lungs were found to be very bad, and intestines, liver and ovaries badly involved. In fact, the whole system was about as bad as I ever saw. She was not fat nor yet what you would call thin, and probably would be passed as a cow with split bag. This large abscess would probably hold half a teacupful in one side of the udder, the other not quite so much, of quite soft pus which flowed readily, and which did not have the usual appearance of pus, which you will see in tuberculosis—different color somewhat, and a great deal thinner.

Dr. Stewart's name appeared next on the programme with a paper upon the subject "Examining Pork for *Trichinae*,"

which embraced the examination under the microscope by the members present of specimens of trichinae which Dr. Stewart had furnished; it was deemed advisable to defer this until after the reading and discussion of Dr. Peters' paper upon "Meat Inspection."
(*To be continued.*)

MASSACHUSETTS VETERINARY ASSOCIATION.

The regular monthly meeting was held on the evening of Dec. 27th, at No. 19 Boylston Place, Boston. President Langdon Frothingham called the meeting to order at 8.15. Minutes of previous meeting read and adopted.

Dr. John M. Parker moved that the Secretary be instructed to send a constitution and application blank to every graduated practicing veterinarian in the State. Dr. Daniel Emerson seconded the motion. Carried.

The essayist for the evening, Dr. Frothingham, read the following paper on "Actinomycosis."

He reviewed the subject of actinomycosis and compared this disease with botryomycosis, a disease of the horse manifested by an infectious tumor (botryomycoma), which both macroscopically and microscopically closely resembles the actinomycoma. Dr. F. spoke of the various animals in which actinomycosis has been observed, and the portions of the body where these tumors have been found. He spoke particularly of actinomycosis of the udder in cattle. Although the disease in this organ is rather uncommon, it has been thoroughly described by several European investigators. Jensen, of Copenhagen, for instance, has written of 20 cases and called attention to its occurrence in two distinct forms; in one form, the more common, the lesions are usually not numerous, but are apt to be extensive, a single tumor becoming as large as a hen's egg or even larger, and containing much pus. One or more quarters of the udder may be involved.

In the other form the udder may become double its normal size in the course of a few months and is very hard and rough. Sometimes only one quarter, and sometimes all four are attacked. The cut surface may seem almost normal, but upon close inspection, the lobules are seen to be larger than usual and to contain nodules with purulent centres. These nodules may be exceedingly small, hardly visible to the unaided eye, or they may be as large as a pea. They may be found in countless numbers scattered throughout the gland and are also found on the mucous membrane of the milk ducts and cisterna. Such

cases of actinomycosis of the udder so closely resemble miliary tuberculosis of that organ that a diagnosis can only be made by the microscope. Actinomycosis of the udder in swine is mentioned as a common occurrence in Europe by John Colin and others; Dr. F. has never seen a case in this country. Dr. F. then demonstrated the udder of a cow which showed extensive lesions, illustrating the second form of actinomycosis as described by Jensen; he called attention to the peculiar pus from the nodules, which showed the typical yellowish granules (ray fungus or actinomyces), always present in cases of actinomycosis and by which a diagnosis is readily made; a quantity of these granules in a small tube of alcohol were also shown.

The appearance of these granules fresh from the pus and crushed under a cover glass demonstrated with a microscope, were also shown. Sections of the udder, stained with hæmatoxylin and eosin, were shown with both high and low power of the microscope, further illustrating the appearance of the actinomyces and the histological structure of the nodules.

The cause of the disease was then spoken of. Pictures were shown to illustrate its polymorphous form. To what group of micro-organisms the actinomyces properly belong is still an open question, the speaker said, so that the term actinomyces seems still the best to use. The best opinion agrees that it is exceedingly difficult to cultivate this organism artificially, and that experimental inoculation from animal to animal is practically impossible. The disease, therefore, can only be infectious to a very mild degree, if at all, an assumption amply upheld by experience, since markedly diseased animals may remain for years in a herd without infecting other animals.

On the contrary, the disease is often observed in mild enzootic form where herds are fed on certain grasses and grains. Especially, it seems, where these are grown upon reclaimed lands. The life history of the micro-organism is unknown. It may be that its life in the animal body represents only one phase and that the most virulent form occurs in its life upon some grasses and grains.

Dr. F. then spoke of botryomycosis. In 1869 Bollinger gave this name to a disease of the lungs in horses, which is characterized by fibrous tumors varying in size from a small pea to a pigeon's egg, and having larger or smaller purulent centres. He describes a specific fungus as the cause and called it *zooglosa pulmonis equi*.

In 1884 Risolta again described this fungus and classed it

with the *actinomyces bovis*. Later, in 1885-86, Cohn and Robe further studied this organism, succeeded in cultivating it in the laboratory and reproduced the disease by experimental inoculation. The organism is a micrococcus which in the animal body collects in clumps, and these clumps become surrounded by zooglosa mass.

Cohn called the organism *micrococcus ascofurnams*. Besides the tumors in the lungs this micrococcus has been shown to be the cause of numerous other tumors in the horse. The most common is the champignon or chronic scirrhus cord; also small tumors in cutis and sub-cutis at any part of the body where there is pressure from the harness (region of collar, croup, corners of mouth, etc.); tumors on stump of tail after docking, tumors in the udder, and finally theory of "fistulous withers." The macroscopic lesions are exactly similar to those of actinomycosis, even to the yellowish granules. Differential diagnosis is only possible with the microscope, when it is seen that these granules are composed of numerous round masses of zooglosa and not actinomyces. Such diagnosis is essential since in several instances scirrhus cord in the horse has been caused by the actinomyces.

Up to the present time botryomycosis has only been observed in the horse. Sections of a tumor of the cord and one of the udder of a mare were shown.

Dr. Winchester moved a vote of thanks to the essayist.

Dr. E. T. Harrington reported a case of colloid cancer of the stomach.

Dr. J. F. Winchester reported a case of aneurism and embolism of the posterior aorta, and both iliacs of the right side and the internal of the left. History—A chestnut gelding, aged, was subject to attacks of colic during the past three years; lameness, first manifested during the summer of 1889, which with rest passed away; during the fall the lameness became very severe, especially if the horse was driven faster than a walk; this would pass away in a few days. Just previous to being killed he could not trot a half-mile without becoming very lame and in great pain. Post-mortem showed a dilation of the posterior aorta with an organized clot from the posterior end, anteriorly to where the iliacs are given off. The iliacs of the right side were dilated and contained an organized clot for about twelve inches; the internal iliac of the left side contained a clot several inches in length.

Members present—Drs. Emerson, Frothingham, Harring-

ton, Howard, Lee, Lewis, Parker, Pierce, Stickney, Winchester, Winslow.

HENRY S. LEWIS, *Secretary*.

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

The fifth semi-annual meeting of the Minnesota State Veterinary Medical Association was held at the Merchants' Hotel, St. Paul, Jan. 11th and 12th, 1900. President Dr. M. H. Reynolds, of St. Anthony Park, called the meeting to order.

The following members responded to roll-call:—Drs. C. C. Lyford, S. D. Brimhall, J. G. Annand, J. S. Butler, A. A. Keyes and M. J. Sexton, of Minneapolis; B. A. Pomeroy, R. Price and G. A. Dallamore, of St. Paul; M. H. Reynolds, of St. Anthony Park; J. P. Anderson, Rochester; L. Hay, Fairbault; K. J. McKenzie, Northfield; B. Lambrechts, Montevideo; S. H. Ward, St. Cloud; W. Amos, Owatonna; J. N. Gould, Worthington; Geo. McGillivray, Pipestone; J. W. Gould, Fairmont; F. J. McLaughlin, Blue Earth City; H. C. Lyons, Hutchinson; H. C. Peters, Litchfield; F. H. Farmer, Wapeton, N. D.

President Reynolds gave an address, speaking lengthily on how to make a State veterinary medical association a success, bringing out some very useful points with regard to place and way of holding association meetings, emphasizing the fact that association work should be based upon the work of its individual members.

Dr. Ward gave a report on veterinary college education, bringing out some very important facts in regard to graduates of two year colleges.

Dr. Reynolds, as chairman of the committee on recent veterinary literature, read a very interesting report on the great advances made in veterinary surgery.

Dr. Brimhall reported some results obtained from the use of potassium iodide in the treatment of parturient paresis and in azoturia.

Dr. Brimhall also spoke quite lengthily on dealing with infectious diseases of animals.

Dr. C. C. Lyford then made his report as chairman of the Committee on Legislation and Empirics, stating that the case against Dr. McCulloch, of Minneapolis, for illegal practice, had been set for trial January 19th, he having pleaded not guilty.

Farmer Miles, of Charleston, Ill., who was present at the

meeting, was called upon and made some very interesting remarks on ridgling castration.

The meeting then adjourned to the State Farm for supper, after which clinics were held as follows :

Removal of scirrhus cord—Farmer Miles.

Operation for fistulous withers—Dr. J. N. Gould.

Removal of lateral cartilage for quittor—Dr. C. C. Lyford.

The meeting then adjourned till 9 A. M., Friday 12th, when the following applicants were taken in as members of the association: Drs. E. T. Eckles, St. Charles; W. A. Sprouler, Waseca; M. S. Whitcomb, Austin; E. T. Frank, Warren; T. Falconer, Glenwood.

On motion, Drs. Reynolds and Brimhall were appointed to draw up an agreement with the Board of Trustees of the State Agricultural College to make arrangements for a Minnesota State Veterinary Medical Museum, to be contributed to by the different members of the association.

The Secretary then read a circular letter from Dr. Salmon, asking for the support of the individual members in fighting for the bill for the improvement of U. S. Army veterinary corps.

On motion, the President appointed a committee of three to draw up resolutions representing the sentiments of the association with regard to the Army bill. Drs. S. H. Ward, E. T. Frank and J. G. Annand were appointed.

A voluntary contribution was taken up and Secretary was instructed to send same to Dr. Salmon for the A. V. M. A. Committee on Army Legislation.

The election of officers then took place, with the following results:—

President—Dr. S. H. Ward.

First Vice President—Dr. W. Amos.

Second Vice President—Dr. C. C. Lyford.

Secretary and Treasurer—Dr. K. J. McKenzie.

Trustees—Drs. B. Lambrecht, H. C. Lyons, and J. S. Butler.

The meeting then adjourned for dinner. At 2 P. M. the meeting was called to order by President S. H. Ward.

Dr. C. C. Lyford reported a case of unusual and interesting lesions of glanders, and exhibited a portion of a trachea showing marked glanderous lesions. A very interesting discussion followed on the use of mallein in the diagnosis of glanders.

Dr. Head, M. D., then read a very interesting paper on the

"Leucocyte Count in Septic Infection," followed by an interesting discussion.

On motion, a vote of thanks was tendered Dr. Head for the manner in which he handled his subject.

The following committees were then appointed:—Colleges, Dr. S. H. Ward; Infectious Diseases, Dr. S. D. Brimhall; Finances, Dr. M. J. Saxton; Legislation, Drs. J. S. Butler, R. Price, and C. C. Lyford.

The Committee on Recent Veterinary Literature was subdivided as follows:—Surgery, Dr. M. H. Reynolds; Bacteriology, Dr. S. D. Brimhall; Medicine, Dr. J. N. Gould.

The meeting then adjourned. K. J. MCKENZIE,
Sec'y and Treas.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was called to order at 8.30 P. M., Feb. 7, in the Lecture Room of the N. Y. A. V. C., by President Robertson. After roll-call the reading of the minutes of the preceding meeting was heard.

Report of Board of Censors.—Dr. Clayton, Chairman, reported the name of Dr. August H. Drucker, graduate of the A. V. C., class of 1894, which had been acted upon by that committee, for admission to membership, and favorably recommended him for election. Moved and seconded that the report be accepted and that Dr. Drucker be duly elected a member of the association. Carried. Dr. Drucker was declared a member, and was introduced as such to the members present by Dr. Clayton.

Reading of Papers.—Dr. Lellman next read a very carefully prepared paper entitled, "Heart Stimulants in Acute Infectious Diseases of the Horse." A general discussion followed. Moved by Dr. O'Shea that a vote of thanks be tendered the essayist. Seconded and carried.

Committee on Legislation reported progress through Chairman O'Shea.

Committee on Ways and Means.—D. Bell, Chairman, reported two papers for the March meeting. Dr. Ryder's paper held over from February meeting on "Docking," and "What Constitutes a Spavin in Examination for Soundness," by Dr. Hanson.

Reports of Cases.—Dr. Schwarzkopf, by request of the President, related a few cases of parturient apoplexy treated with

Schmidt's treatment. Discussion. Dr. Bell then opened the subject of azoturia and treatment by iodide of potassium. Discussion.

New Business.—Moved and seconded that the janitor receive two dollars a month. Carried.

Committees Appointed.—The Secretary was requested to announce the following committee appointments by the President. Board of Censors: Dr. Clayton, Chairman; Drs. Roscoe R. Bell, R. S. MacKeller, E. B. Ackerman, and J. E. Ryder. Legislative Committee: Dr. Arthur O'Shea, Chairman; Drs. F. C. Grenside and Wilfred Lellman. Prosecution Committee: Dr. W. C. Bretherton, Chairman; Drs. T. Delaney and Geo. J. Goubeaud. Ways and Means Committee: Dr. Roscoe R. Bell, Chairman, and Dr. Theodore A. Keller. These are the several committees for the year 1900, which President Robertson could not find time to appoint earlier, and requested the old committees to act until new ones could be appointed.

Moved and seconded that the meeting adjourn. Carried.

ROBERT W. ELLIS, D. V. S., *Secretary*.

CHICAGO VETERINARY SOCIETY.

The monthly meeting of the society was called to order on Monday evening, January 1st, in hall 912, Masonic Temple. President Hughes presided and twenty-five members and several visitors were present. All were pleased with the new meeting place and many expressed regret that we could not secure a lease for one meeting a month.

The application for membership of Dr. W. F. Fish having been favorably indorsed was presented and his election followed. Dr. W. E. Howe presented a paper on "Post-Mortem Inspection of Swine,"* which was greeted with enthusiasm, prolonged applause, a lively and extended discussion. The privileges accorded to physicians by the telephone company was recited by Dr. E. L. Quitman, and it was resolved upon his motion that a committee be appointed to confer with the officials of the company and ask that veterinarians be granted free use of drug store telephones in calling up their offices. President Hughes appointed the following to look after the matter: Doctors E. L. Quitman, R. G. Walker and A. C. Worms.

A few other matters of interest to members were discussed and it was resolved to adjourn.

The regular monthly meeting of the society was convened

* Will be published in an early issue.

on Monday evening, Feb. 12, 1900. President Hughes presided. Seventeen members and Dr. Mitchell, of the B. A. I., were present.

President Hughes announced the inability and cause of Dr. Jas. G. Fish's absence, who intended to read a paper on "Post-Mortem Inspection of Cattle," and in its stead Dr. E. L. Quitman had kindly agreed to present an essay on "Paralysis and Treatment," which when read was received with much favor and ended with an extended discussion of much interest to all.

Dr. O. R. Dubia reported a case of stringhalt due to an injury received by having the foot caught in the car track. This was followed by a case somewhat similar and reported by Dr. Quitman in which stringhalt followed an injury to the vertebræ; both cases were thoroughly discussed and the meeting adjourned.

JOS. B. CLANCY, *Secretary*.

GRADUATES SOCIETY M'GILL UNIVERSITY.

The second annual reunion and banquet of the graduates of the Faculty of Comparative Medicine and Veterinary Science of McGill University was held in Boston, at the Quincy, Feb. 17, 1900. About twenty-four sat down to the dinner, among whom were Prof. M. C. Baker, representing the Faculty of Comparative Medicine of the University; Prof. Colby, representing Principal Peterson, of the University; Dr. J. F. Winchester, representing New England Alumni Association, A. V. C., and Dr. Williams, M. D., representing the Graduates Society of McGill, and Drs. W. L. Williams, Ithaca, N. Y.; J. M. Parker, Haverhill, Mass.; B. D. Pierce, Springfield, Mass.; G. H. Lee, Boston; A. S. Cleaves, West Gardner, Mass.; J. H. Roberts, C. A. Boutelle, H. H. Neucomb, D. Cullen, J. C. Parker, J. F. Fahey, L. A. Paquin, D. B. Comstock and W. Lincoln Bell.

After a meeting in the reception room for the purpose of introducing the graduates of the different years an adjournment was taken to the banquet hall, where after a repast in which the chef surpassed himself, the toasts and address of Prof. W. L. Williamson "Veterinary Progress" was listened to with much interest. In the business meeting following it was decided to form a permanent society under the name of the "Graduates Society, Faculty of Comparative Medicine and Veterinary Science, McGill University," with an annual subscription of two dollars, of which the surplus, after deducting current expenses, is to be held in trust until there is sufficient to endow a

post-graduate course. A notice of this to be sent to every graduate.

The election of officers resulted in the selection of Dr. J. M. Parker, Haverhill, Mass., President; Dr. A. W. Cleaves, West Gardner, Mass., Secretary-Treasurer, and a board of six trustees.

The date and place of the next reunion is to be decided upon by the officers.

NEWS AND ITEMS.

DR. G. W. WATERS, of Brooklyn, has retired from practice and removed to his farm in Delaware.

PAINLESS BLISTER.—The following is recommended in the *Medical Record*: \mathcal{R} Mentholis, chloralis, $\bar{a}\bar{a}$ gr.xx; ol. theobrom., 3 ss; spermaceti, 3 i. M. et fiat past. Sig. apply.

MALPRACTICE is defined by a writer in the Philadelphia *Medical Journal* as "conduct on the part of the physician which does not conform to certain standards and which results in the injury of the patient."

DR. H. D. GILL recommends the hypodermic injection hourly of two drams of a solution of camphor and ether (1:10) as a heart stimulant in critical conditions around the crisis of lung inflammations.

WHILE automobiles were being stalled by a snowstorm of only moderate proportion in New York the middle of February \$125,000 worth of trotting horses were sold at Madison Square Garden. A yearling brought over \$2000.

VETERINARIAN W. T. MONSARRAT, of Honolulu, H. I., was a competitor for the amateur photographic prize of *Leslie's Weekly* recently. His last effort was a well executed reproduction of the burning of the plague-infested buildings in Honolulu.

THE NEW YORK SPEEDWAY has stimulated so much interest and rivalry in the light harness horse that the horse-men of every city where such horses are at all popular are either constructing one or are discussing means for obtaining one. The practicing veterinarian can look upon such efforts with complacency.

FAMOUS OLD MAUD S. was shown but not offered at the dispersal sale of the late Robert Bonner's horses in New York last month. Foaled in 1874, her companions had to keep a respectful distance from her heels, her old disposition to kick

being as active as when she captured the world's record.

THE annual report of the United States Quartermaster General for the year ending June 30, 1899, shows that for the use of the U. S. army 7283 horses were purchased at a total cost of \$790,998.21. At the date mentioned there remained in the possession of the army authorities 12,622 horses and 13,158 mules, valued at over \$2,500,000.

A DISTINGUISHED PHYSICIAN, in the *Medical Record*, comparing the treatment of pneumonia at the beginning and close of the nineteenth century, says that in the first epoch the main reliance was bleeding and counter-irritation, which are both now out of vogue. He regards the abandonment of phlebotomy as a distinct loss, as, though it was much abused, it left fewer diseased organs as a sequel.

THE VETERINARIAN IN THE ARMY.—The following letter, signed "Cavalryman," is from the *Army and Navy Journal* of Jan. 27: "The veterinary surgeons of our cavalry regiments have an anomalous position. The veterinarian is as important for the care of our horses as a surgeon is for the care of our men. In other words, he is a necessary adjunct to our cavalry service. He should be given an official status similar to that of our surgeon, and should have the privilege of retiring after an honorable and faithful service. As it is now, a veterinary surgeon is appointed by the Secretary of War, and assigned to a regiment and becomes a part of that regiment; yet he is regarded as a civilian. He sees men grow old in the service and retire as a reward for their long and faithful service; but he remains, no matter how old he grows or how long and faithful is his service. Now, that legislation is being considered with a view of improving the Army, the anomalous status of the veterinary surgeon should be corrected. They should be given the rank, pay, and allowances of an officer of cavalry."

AN ELECTRIC DANGER FOR HORSES.—Herr Rusterholz, writing to the *Schweizer Archiv* and reported in *The Veterinary Journal*, relates a somewhat startling story which may put veterinary surgeons on their guard in these days when electricity is used everywhere. He says that two carriage horses got into the habit of refusing to take their oats. They both appeared to be in perfect health, ate hay with appetite, and took their oats easily; but at a given moment after they had consumed a part of their ration, they tried to take up the oats at the bottom of their iron manger and suddenly recoiled, making curious movements with their heads. The animals did

their work well and seemed to be in good spirits, but the same strange conduct was repeated at each meal. When Rusterholz was called in he began by examining all the food, especially their oats. All was found to be of excellent quality. Wishing to see if the oats lying in the manger had not undergone some deterioration which might explain the symptoms, he thrust his hand into the oats, which were now somewhat moist by admixture with saliva and water. Each time he did this he felt a curious tingling, such as is produced by an electric current. The stable being lighted by electricity, Rusterholz caused the wires to be examined, and this brought about the discovery that over the horses' heads the wire had become denuded of its insulating cover; the current was transmitted by the coat of paint, which had become an excellent conductor by reason of a slight coating of moisture deposited on its surface through the condensation of vapor, and this current reached the iron manger. It did not cause the animals any trouble so long as the oats were dry; but as soon as they became damp by the saliva and condensed vapor from the horses' breath it took effect, and the animals were subjected to it every time they took a mouthful of oats.

ALEX. EGER, 34 East Van Buren St., Chicago, Ill.,

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REVIEWS FOR EXCHANGE.

I have these duplicates: Vol. XVIII, July (1894); Vol. XV, April and May (1891). I need the following: Vol. XIX, September and October (1895); Vol. XVII, January (1894). Would like to exchange with some one having duplicates, etc. HUGH THOMSON, V. S., Sharbona, Ill.

NOVEMBER, 1894, REVIEW WANTED.

To complete my file I would like to secure No. 8, Vol. XVIII of the AMERICAN VETERINARY REVIEW. Any one having an extra copy of that number please address H. D. STEBBINS, V.S., West Winfield, N. Y.

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